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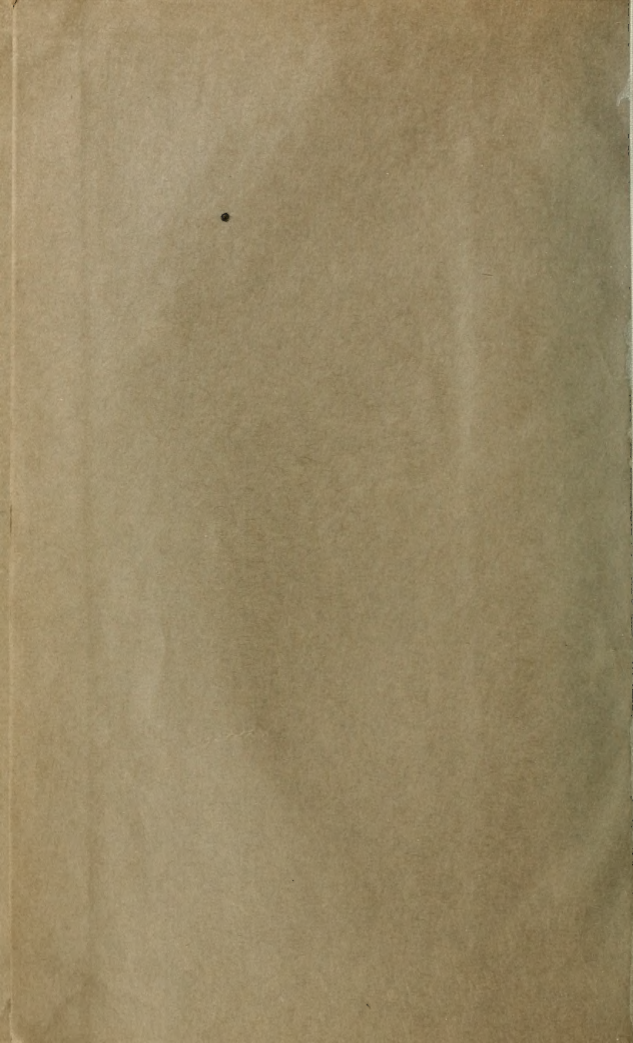
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PUBLICATIONS

OF

FIELD MUSEUM OF NATURAL  
HISTORY

REPORT SERIES

VOLUME VII



CHICAGO, U. S. A.

1926-1928



THE LATE DAVID C. DAVIES

Director of the Museum from December 19, 1921 to July 14, 1928, the date of his death

# FIELD MUSEUM OF NATURAL HISTORY

FOUNDED BY MARSHALL FIELD, 1893

PUBLICATION 256

REPORT SERIES

VOL. VII, No. 3

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## ANNUAL REPORT OF THE DIRECTOR

TO THE  
BOARD OF TRUSTEES

FOR THE YEAR 1928



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MAY 13 1929

UNIVERSITY OF ILLINOIS

CHICAGO, U. S. A.

January, 1929

PRINTED IN THE UNITED STATES OF AMERICA  
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## BEQUESTS

Bequests to Field Museum of Natural History may be made in real estate, money, books or collections. They may, if desired, take the form of a memorial to the memory of a person or cause, to be named by the giver. For those desirous of making bequests to the Museum, the following form is suggested:

### FORM OF BEQUEST

I do hereby give and bequeath to Field Museum of Natural History of the City of Chicago, State of Illinois.

Each contribution made within the fiscal year to Field Museum of Natural History is tax exempt and its return of 24 per cent of the taxpayer's net income is allowable as deduction in computing net income under Article 201 of Republic Act No. 617, or the income tax under the Internal Act of 1908.

Endowment may be made to the Museum with the provision that an income be paid to the patron during his or her lifetime. Other conditions are subject to the provisions of the Internal Act of 1908.



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CHIEF ENGINEER  
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WILLIAM E. LEE, General Engineer



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## DAVID CHARLES DAVIES

June 26, 1886—July 14, 1928

Elected Director December 18, 1921

During the year under review the Museum sustained a very serious loss through the death of its Director, David Charles Davies, which took place, after an illness of several months, at his residence on July 14, 1928.

Mr. Davies entered the service of the Museum in 1894 as Auditor. He was successively Receiver, Assistant Secretary and Secretary, succeeding to the Directorship of the Museum in 1921 at the death of Dr. Frederick J. V. Skiff, the Museum's first Director.

Throughout his many years of connection with the Museum, Mr. Davies performed his services with judgment and ability and always sought the Museum's best interests.

Crowned to the position of Director by virtue of his administrative ability and profound knowledge of the needs and aims of the institution, Mr. Davies carried on the Museum's work to new objectives and enlarged its fields of usefulness. He did his full share in helping to build up the Museum to the position it now occupies.

On July 16, 1928, the Board of Trustees adopted the following resolution in tribute to the memory of Mr. Davies:

"The Trustees of Field Museum of Natural History desire to express and record their deep sorrow at the loss which they and the institution have sustained by the death on July 14, 1928, of their fellow Trustee, Secretary of the Board, and Director of the Museum, David Charles Davies.

"Mr. Davies' connection with the Museum dated shortly after its inception and continued to the time of his death, during which period he exerted a beneficent influence on its activities and devoted himself to its interest with success and fidelity.

"As a member of the Board, his fellow Trustees placed great reliance on Mr. Davies' judgment and knowledge of the needs of the institution and the best methods of prosecuting its program.

"Mr. Davies' very able administration of his many and varied duties won the highest respect and esteem of the Board of Trustees.

His unselfish labors on behalf of the Museum will bear fruit for many years to come.

"The Board of Trustees desires to have this expression of their appreciation of Mr. Davies' work and character spread upon the records of the institution and a duly attested copy thereof sent to the members of his bereaved family.

"STEPHEN C. SIMMS, Acting Secretary

STANLEY FIELD, President"



## ANNUAL REPORT OF THE DIRECTOR

1928

To the Trustees of Field Museum of Natural History

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1928.

There is much cause for gratification in the achievements of the Museum during the twelve months to be herewith reviewed. For the second time attendance has exceeded one million. The membership of the Museum has shown a healthy growth which indicates increasing appreciation and approval by the public of the institution's activities. Extensive permanent improvements have been made in the Museum building, especially notable among them being the installation of exhibits in six large new exhibition halls on the ground floor, which were opened to the public in June. In extra-mural work the Museum has maintained its proud record of past years, having had thirteen exhibitions in operation in widely scattered parts of the world during 1928. The Museum has been the recipient of many benefactions from its friends. The institution's educational activities for both adults and children have kept pace with the constantly growing demand on the part of the public for such cultural opportunities. Throughout the world attention has been focused through the press on the activities of the Museum, heightening the international prestige which the institution has always enjoyed since its establishment.

The number of visitors to the Museum during 1928 was 1,025,627. When the long and frequent periods of unfavorable and unseasonable weather conditions which prevailed during 1928 are taken into consideration, together with the fact that in 1927 there was one day (October 3) when a special event in Soldier Field brought 30,714 visitors to the Museum, it will be seen that the 1928 attendance compares favorably with that of the preceding year, 1,045,546. The decrease, 19,919, is less than 2 per cent, and is more than accounted for by the single exceptional day's attendance in 1927 above mentioned, as there were no events in Soldier Field during 1928 which drew comparable crowds during Museum hours.

Heartiest expressions of gratitude and appreciation are due to those who have evidenced their good will toward and interest in

the Museum through contributions in the form of memberships. The Museum now has on its rolls more than 5,000 Members—the exact figures by classifications, and a complete list of the names, are to be found in other sections of this Report.

The increase in the number of such contributors may well be considered as an indication of widening public approval and appreciation of the Museum and its mission. Each person registered on the rolls, through all the membership classes from Benefactors to Annual Members, is entitled to recognition as a public-spirited citizen who by his contribution is supporting a great educational work. Every one of these Members is helping the Museum to maintain and expand its activities in the fields of scientific research and dissemination of knowledge, and without their aid the institution's work would be seriously curtailed. The Museum is happy to acknowledge this support, and it is indeed a great satisfaction to note the continuing growth of the membership lists.

In recognition of the very valuable and eminent service rendered the Museum by Mr. William V. Kelley, the Trustees have elected him as a Benefactor, and they have named Hall 17 (which is to be devoted to Asiatic mammals, some groups of which have already been installed) "William V. Kelley Hall."

During 1928 the Trustees also elected Mrs. Emily Crane Chadbourne and Mrs. William H. Moore as Patrons of the Museum because of their generous help to and interest in the institution.

The following were elected Life Members: Mr. George E. Brannon, Mr. Reuben G. Chandler, Mr. Russell Tyson, Mr. R. Douglas Stuart, Mr. Alfred E. Hamill, Mr. Homer L. Dixon, Mrs. Harold E. Leopold, Mr. Edward J. Ryerson, Mr. Arthur Reynolds, Mrs. Watson F. Blair, Mr. Frank A. Hecht, Jr., Mr. Edward N. Hurley, Mr. John Jay Abbott, Mr. John Griffiths, Mr. Moise Dryfus, and Mr. Robert A. Gardner.

Prominent among the many important activities undertaken during 1928 was the completion and opening to the public of six large new exhibition halls in the Department of Anthropology. These halls were opened in June, and are the first six to be completed of a total of fourteen which are being added to the exhibition space through extensive reconstruction of the Museum's ground floor. This project has been made possible through the generosity of President Stanley Field.

The six new halls opened in 1928 contain new collections illustrating the ethnology of Africa and Madagascar (the latter being

the results of the Captain Marshall Field Anthropological Expedition to Madagascar in 1926-27, and probably the world's finest collection of its kind, and also enlarged and reinstalled collections representing the ethnology of Polynesia, Melanesia, Malay Peninsula, Malay Archipelago, Philippine Islands, India, Siberia and Korea, and Egyptian archaeology. The additional area gained by transforming this large part of the ground floor into splendid exhibition halls amounts to 38,000 square feet. Further details concerning these halls and the collections they contain will be found elsewhere in this Report.

Important changes were made also in Ernest R. Gruftum Hall of Historical Geology. The fossils in this hall were reinstalled, and to them were added some of the outstanding specimens obtained by the two Captain Marshall Field Paleontological Expeditions to Argentina and Bolivia, the second of which concluded its work in 1927. On the walls of this hall were installed the first ten of the projected series of twenty-eight large mural paintings representing the prehistoric world and its life, which Mr. Ernest R. Gruftum is giving the Museum. Work on these paintings was begun in 1926, as recorded in the Annual Report of the Director for that year. In restoring scenes of the prehistoric periods and the life typical of each, the artist, Mr. Charles R. Knight of New York City, has based his conceptions on the facts established through scientific research by paleontologists. The cases and the paintings in Ernest R. Gruftum Hall are lighted by an extremely effective new method.

Among other important new exhibits installed during 1928 are the following: habitat groups of the Ovis poli or Marco Polo sheep and the Himalayan or Asiatic ibex, composed of animals obtained by Colonel Theodore Roosevelt and Mr. Kermit Roosevelt while they were leading the J. M. Simpson-Roosevelts Asiatic Expedition for Field Museum in 1923-26; a group of five mountain sheep, four of the specimens of this rare animal having been secured by the Field Museum Chicago, Emily Vose Alayman Expedition, in 1926-27, and one having been presented by Captain Harold A. White; a specimen of the ibex, one of the rarest animals in the world, obtained by the Captain Marshall Field African Expedition, 1925; a habitat group of gnu or kudu from Tanganyika, Africa; a group of the distinctive antelope, the dik dik, and a group representing a pronged member of the Mammal Department. There were also many other interesting and important additions to the exhibits in all Departments of the Museum, details of which appear elsewhere in this Report.

Several innovations which have proved very helpful to visitors were made during 1928. An effective and much needed directory service giving the numbers and locations of halls was inaugurated by placing framed printed placards near the entrances of the Museum, and at the head and foot of each stairway. To further serve the visitors, there were installed at either side of the main entrance other large printed and framed placards giving useful information concerning the Museum. Also, at the entrance to each exhibition hall framed and printed placards were placed, giving the number and designating the contents of the hall. On the walls in prominent places on the ground and first floors attractive frames were installed, which may be quickly and easily opened for the changing of timely announcements. These are used for the display of posters advertising the Museum's lecture courses for adults, the Raymond Fund entertainments for children, the monthly schedules of guide-lecture tours, bulletins calling attention to new exhibits, and other announcements.

The Museum had thirteen expeditions in the field during the year. Several of these did not begin operations until the last quarter, and they are expected to continue their work through all or most of 1929. Following is a brief summary of the year's expeditions:

The William V. Kelley-Roosevelts Expedition to Eastern Asia, to make zoological collections in remote parts of French Indo-China, and to explore certain unknown territory lying northward of Indo-China along the gorges of the Mekong River, set out in two contingents late in the year. Colonel Theodore Roosevelt and Mr. Kermit Roosevelt are the leaders, and Mr. William V. Kelley is sponsor. One contingent led by the Roosevelts themselves, left the United States November 10; the other, led by Mr. Harold J. Coolidge, Jr., of Boston, sailed December 22. After completing their separate objects and covering their separate territory, the two parties will unite in Indo-China for further work together. Among other members of the expedition are Mr. Suydam Cutting of New York; Dr. Josselyn Van Tyne, Assistant Curator of Birds of the Museum of Zoology of the University of Michigan; Dr. Ralph E. Wheeler of Cambridge, Massachusetts; Mr. Russell W. Hendee of Brooklyn, New York, and Mr. Herbert Stevens of London, England.

Mr. Cornelius Crane is sponsor and leader of the Crane Pacific Expedition which will circumnavigate the Pacific Ocean and collect land and marine zoological specimens. The voyage is being made on his yacht, the *Illyria*. Mr. Karl P. Schmidt, Assistant Curator of



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Regalia, a leader of the scientific section. Among other members of the expedition are Dr. Albert W. Berry, Curator of the Museum of Zoology of Johns Hopkins University; Dr. W. L. Moss of Harvard Museum of Natural History; Mr. Charles E. Snow of Johns Hopkins; Mr. Robert H. Whistler of Boston and Messrs. Walter A. Weber and Frank Wheeler of the Museum's Department of Entomology.

The David White-John Cross-McMurry Expedition of Field Museum, launched and led jointly by Charles David E. White of New York and Major John Cross of Sydney, Australia, left in October to make ecological collections in Argentina. Among other members of the expedition are Mr. V. J. Andrews of the scientific staff of the Museum, and Mr. George E. Davis of Baltimore, Maryland.

The Brown-McMillan-Schaeffer Expedition of Field Museum, which began operations in June, 1927, concluded its work and returned home in September, 1928. The expedition was organized by Mr. Pauline H. Brown, and was led by Commander Donald H. MacMillan. The expedition was successful in making important collections of ethnological, linguistic, geological and zoological material, and it obtained much new scientific data on a wide variety of subjects, including the ethnology of the Eskimo and Indians of Labrador and Baffin Land. Among the members of the expedition were Dr. William D. Strong, Assistant Curator of North American Ethnology and Anthropology at the Museum; Mr. Stuart C. Day, Assistant Curator of Southwestern Paleontology at the Museum; Mr. Alfred C. Wood, Assistant Curator of Paleontology at the Museum; Mr. Arthur C. Durrant of the Museum's technical staff; Mr. Charles J. Small, Naturalist, of Worcester, Mass., and Dr. H. E. Laughton of Chicago. Working in conjunction with the Brown-McMillan-Schaeffer Expedition was the Canadian Mounted Police Canadian Expedition to Inuvik-Northwest in charge of Assistant Curator Roy Webb, which collected considerable faunal data.

The Field Museum Oxford University Lake Expedition to Mesopotamia completed its work among archaeological excavations on the site of the ancient city of Eridu during 1928 with satisfaction. The season was especially fruitful in the recovery of unexcavated objects in the lower areas of the great temple period of ancient Eridu. Large sections of the temple of Enmesharra, the Earth Goddess of the Sumerians, have been exposed. Material excavated this season is believed to date back to between 3000 and 2000 B.C. An almost complete four-armed statue, and well-preserved

remains of a two-wheeled chariot, which are believed to be the oldest relics of their kind ever excavated, are numbered among the most important finds.

Human and animal skeletal material, important for the light they throw upon the life of the ancient city, have also been unearthed. The expedition will continue its operations in 1929. Captain Marshall Field is sponsor of the expedition for Field Museum, and Mr. Herbert Weld is its sponsor for Oxford. Professor Stephen Langdon of Oxford, is director of the expedition; Mr. L. S. Watelin is in charge of excavations; and Mr. Henry Field, Assistant Curator of Physical Anthropology at Field Museum, was one of the principal collectors during the season of 1928.

The Captain Marshall Field Anthropological Expedition to Europe did not return to the United States until 1928, although its work of collecting material bearing upon prehistoric man, for use in a proposed Hall of Prehistoric Man in the Museum, was completed in 1927. Assistant Curator Henry Field was leader. The two Captain Marshall Field North Arabian Desert Expeditions, the first of which ended late in 1927, and the second of which worked in the spring of 1928, were also under the leadership of Assistant Curator Field, and they made an extensive archeological survey of part of the North Arabian or Syrian Desert lying between the Damascus-Maan railroad and Bagdad. The expeditions covered some 6,000 miles, discovered several hundred open-air prehistoric sites, and obtained important specimens and data.

Two Captain Marshall Field Archaeological Expeditions to British Honduras under the leadership of Mr. J. Eric Thompson, Assistant Curator of Central and South American Archaeology at the Museum, conducted operations in 1928. The first, which had begun its work in the latter part of 1927, concluded operations in 1928. The second expedition departed in December to continue the researches into ancient Maya civilization begun by the first expedition, which discovered the sites of three buried cities. In addition to the archaeological work, ethnological studies are to be made, and Maya artifacts are to be collected.

The Museum obtained a collection of woods, including some rare ones, and herbaceous material from Panama, as the result of a joint expedition of Field Museum, Yale University, the New York Botanical Garden and the United Fruit Company. Captain Marshall Field was sponsor for the Museum. Mr. George Proctor Cooper of Los Angeles was the collector.

A joint expedition of Yale University and Field Museum made collections of the Birds of Venezuela. Mr. E. C. Engseng of Puerto Cabezas was the collector.

A botanical expedition, sponsored by Francis Marshall Field, which has been working for several years in South America in charge of Dr. A. Wotchehaus of Lima, Peru, continued operations.

A zoological expedition is being in charge of Ernest E. C. Fraughton of Toronto, also continued operations begun in previous years. Charles Marshall Field is its sponsor.

The Museum was not supplied of many specimens during the year. It is doing hard to raise the expenses of living for all who have made contributions for money and material.

Acknowledgments of contributions of funds follow herewith:

Mr. William V. Kelley made a gift of \$100,000 to defray the expenses of the William V. Kelley-Roosevelts Expedition to Eastern And for Field Museum.

Charles Marshall Field made his annual contribution of \$100,000 to cover the expenses of various Museum expeditions of 1928.

Mr. Francis H. Vandusen gave the sum of \$25,000, which represents the first payment on his contribution of \$125,000 to the Museum.

Frederick Stanley Field made contributions totaling \$65,000 in during the year. These included \$54,000 to complete the building defect fund, \$20,000 to cover the operating deficit of the Museum for the year 1928, and \$11,000 to cover the operating expenses of the Stanley Field Plant Experimental Laboratories for 1928.

Mrs. Stanley Field made a further contribution of \$22,000, making a total of \$2,000, through the Mrs. Carroll Field Fund for the purchase and installation of a new organ in the Museum.

Mr. Cresswell-Cress is financing the Cress Pacific Expedition of Field Museum which sailed here in 1928, and will continue operations through year of 1929. In connection with this expedition, he gave the Museum also \$2,000 for the purchase of supplies and equipment.

Mrs. Emily Crane's contribution made a contribution of \$20,000 to be known as the Emily Crane-Chafferson Zoological Fund.

Mr. Herbert W. Cross, Jr. gave the Museum \$1,000 for the purchase of specimens for the past collection in Herbert W. Hager's collection fund.

Mrs. William H. Moore contributed \$2,000 for the purchase of twelve fine pieces of early Chinese silk.

Mrs. Anna Louise Raymond made a further contribution of \$2,000 for the work of the James Nelson and Anna Louise Raymond Public School and Children's Lecture Division, which was established in 1925 on an endowment of \$500,000 provided by her, and which has been the recipient of other generous contributions she has made.

For the purchase of the Herbert Devine Jade Collection the following contributions were made: from Mr. Martin A. Ryerson, \$1,000; from Miss Kate S. Buckingham, \$1,000; from Mrs. George T. Smith, \$1,000; from Mr. John Jay Abbott, \$100, and from Mr. Charles B. Goodspeed, \$100.

Mr. Henry J. Patten donated \$1,000 to be used in financing archaeological work.

Mr. William J. Chalmers continued his contributions as in past years by giving \$435 for the purchase of specimens of minerals for the William J. Chalmers Crystal Collection.

Mrs. Chauncey B. Borland gave \$150 for the purchase of a petrified turtle with ancient Chinese inscriptions.

The American Friends of China contributed \$475 as their annual gift for the development of the Chinese section of the anthropological collections.

Mr. Henry M. Wolf gave \$250 towards the purchase of a ceremonial Chinese robe from the Herbert J. Devine Collection.

The estate of the late George F. Porter paid the Museum a legacy of \$25,000, and the estate of the late Arthur B. Jones paid a legacy of \$2,000.

The South Park Commissioners turned over to the Museum \$212,637.59 derived from the tax levy authorized for this purpose by the State Legislature.

The great amount of material for the collections of the Museum received as gifts is a cause of satisfaction, because it indicates that the Museum has a large number of friends who take an active interest in its growth and development. Details of the acquisitions of the year are given in the departmental sections of this Report, and in the list of Accessions beginning on page 513. Among noteworthy gifts were two specimens of red deer, given by Lord Astor of London, England, a beautifully cut rose quartz bowl given by Mr. Richard T. Crane, Jr., and a collection of 3,240 specimens of minerals given by Mrs. Charles M. Higginson. The red deer are from Lord Astor's hunting preserves on the island of Jura off the coast of Scotland, and they have been made into an attractive exhibit

Interior of the Grand Staircase, U. S. Capitol



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remained in George M. Pullman Hall. The new quartz tent has been placed in substitution in Division N. Hypocaustum Hall.

Noteworthy additions and specimens for the various Departments of the Museum were donated also by the following individuals: Mrs. Chauncy B. Garland, Mrs. William H. Moore, Mrs. George T. Smith, Miss Kate Buckingham, Mrs. Douglas Smith, Mrs. Edward E. Ayer, Mr. Martin A. Spencer, Mr. John Jay Albert, Mr. Charles E. Goodspeed, Mr. Henry M. Wolf, Mr. Morris C. Schwab, Mr. John Barber, Mr. Corwith Chase, Mr. William J. Chaloner, Mr. Richard T. Cross, &c.

Other noteworthy additions to the collections were acquired through Museum expeditions, purchases, and through exchanges with other institutions. Details of these will be found elsewhere in the Report. Among the most notable of these are a large Maya altar stone bearing a Maya date corresponding to 171 A.D., obtained by the Carnegie-McIntosh Field Archaeological Expedition to Central Honduras; a large volcanic specimen, weighing about 1,000 pounds, from Chichime, Queensland, Australia, which was purchased by the Museum; an unusually well-preserved skeleton of a prehistoric mammalian (*Thomomys*) from Germany, secured by purchase; the previously mentioned whole and other parts of fossil mammoths, believed to be the oldest in the world, excavated from the valley of Kolb by the Field Museum-Oxford University Polar Expedition to Minnesota; a leg of Mandrill (carnivore, one of the rarest mammals in the world, obtained by a joint expedition in French and Field Museum, Yale University, the New York Museum of Natural History and the French Mail Company, and a skin of the specimen of mammalian-like *Prosimians* and *Agoutis* obtained in the Gold Desert in East Mongolia by the Central Asiatic Expedition of the American Museum of Natural History, New York (with Field Museum cooperation) under the leadership of Dr. Roy C. Wagner, American.

Geological studies have been continued in all branches of the work in the five Departments of the Museum during 1924. Collections have been enlarged, installations of new exhibits have been completed as a satisfactory new space which exhibits have been transferred and prepared, enough has been collected into many exhibits, a number of publications have been issued setting forth the results of important work by the scientific staff, and much work has been done on others still in course of preparation; collecting, transferring and labeling have been carried on systematically; members of the staff have given lectures in the Museum and else-

where, including radio talks; and a great amount of public service has been rendered by the Staff in answering the many inquiries which come in on various subjects within the scope of the Museum.

An important publication issued by the Museum during 1928 is *The Prehistory of Aviation* by Dr. Berthold Laufer, Curator of Anthropology. Because of the prominent place aeronautics hold in public interest at present this publication proved extremely timely.

Important from the scientific standpoint was the discovery, during the year, of a new type of crocodile from New Guinea by Mr. Karl P. Schmidt, Assistant Curator of Reptiles. The species, described in a Museum publication issued recently, was discovered by Mr. Schmidt through work on some crocodile skulls which had been transferred to the Department of Zoology from the Department of Anthropology, which had received them with an ethnological collection.

The discovery also of a new genus of Abyssinian aquatic rodents by Dr. Wilfred H. Osgood, Curator of Zoology, who led the Field Museum—*Chicago Daily News* Abyssinian Expedition, is the subject of another publication issued during the year.

The various Divisions of the Museum—Raymond Division, Public Relations, Library, Printing, Photography, Roentgenology, Illustration and Memberships—as well as the Departments have all made notable progress during 1928. The details of their work appear elsewhere in this Report.

All educational activities of the Museum were continued in 1928, some of them, particularly those dealing with children, on a larger scale than theretofore. Every effort has been made to increase the use of the Museum and establish the most friendly relationships between the institution and the public, both adults and children. The usual spring and autumn courses of free illustrated lectures on science and travel by eminent explorers and scientists, were given in the James Simpson Theatre of the Museum, and the response on the part of the public has been most gratifying. Special series of lectures for Members were also given. All seats in the Theatre were lettered and numbered, and this has simplified the reserving of seats and aids greatly in ushering the holders of them.

As in past years traveling cases containing natural history and economic exhibits were circulated among the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum. The number of cases used and the number of schools and other centers served has continued to increase as in past years.

Throughout the school year lectures with lantern slides were sent out to the schools by the James Nelson and Anna Louise Raymond Public School and Children's Lecture Division of the Museum. Also under the auspices of this Division the usual spring and autumn series of free moving picture entertainments for children were given in the James Simpson Theatre of the Museum, and in addition special winter programs were arranged for the summer and winter seasons.

The educational work conducted for children by the Museum through the N. W. Harris Public School Extension Department and the James Nelson and Anna Louise Raymond Public School and Children's Lecture Division, was made the subject of a pamphlet, "Field Museum and the Child," published by the institution in 1928. This pamphlet contains a complete outline of this work, and is for distribution to school officials, principals, teachers, and others interested.

Children's lecture hours of the evening were given twice daily, except Saturdays and Sundays, at the Museum, where the gift inaugurated in December 1927 whereby children are charged half normal of travelling, as in the past, was admirably repaid each week. These hours have attracted many visitors, and that increase is attested by thousands of names received direct from the public and through the good offices of Chicago during the year. Outside-the-city action has been furnished also by special groups including adult members of various organizations, and classes of children brought from the schools and churches. Several hundred letters were received from boys and girls, members of the "Four H Club" located in widely separated parts of the United States and Canada, expressing their appreciation of their visit to the Museum while attending the International Live Stock Exposition.

The public has been excited further by lectures given every two weeks, since its inception inaugurated by the Museum, and where by which better speakers attended in this connection.

The Library of the Museum performed valuable service by the general public as well as to scientists and students and because of the numerous collections of reference works on natural history subjects it contains, it is a large factor in the educational work carried on.

The Museum suffered two serious losses by the deaths during 1928 of Mr. David C. Davies, Director and member of the Board of

Trustees, and Mr. Watson F. Blair, Second Vice-President and member of the Board of Trustees.

An obituary of Mr. Davies appears at the beginning of this Report (page 387).

Mr. Blair died on February 7, 1928. He had been a Trustee of the Museum since 1894. In 1909 he was elected Second Vice-President and held that office until his death. He was also a Patron, a Corporate Member and a Life Member of the Museum. The following tribute was paid to his memory by the Board of Trustees in a resolution adopted on May 21:

"The death of Mr. Watson F. Blair having been announced at the monthly meeting of the Board of Trustees of Field Museum of Natural History, held May 21, 1928, the following resolution was adopted as a testimonial of his unselfish labors in behalf of the institution:

"The Trustees of Field Museum of Natural History have learned with profound regret of the decease of their fellow Trustee, Watson F. Blair, February 7, 1928.

"The closing of the life of Mr. Blair removes from the Board one of its oldest members. He had served as a member of the Board of Trustees and of its Finance Committee since the incorporation of the Museum. In 1907 he accepted the Chairmanship of the Finance Committee and a membership on the Executive Committee, and in 1909 he was elected Second Vice-President of the Corporation. As a member of these Committees, and as an Officer of the Board, he performed his exacting duties with unfailing interest, ability and devotion until the time of his death, although they involved, especially in the earlier years, a considerable sacrifice of his time.

"He was in the fullest accord with the purposes of the Museum, and was always deeply concerned in its progress and welfare.

"The Trustees extend to the members of Mr. Blair's bereaved family their sincere sympathy; and in token thereof have unanimously adopted the foregoing testimonial and ordered it to be spread upon the records of the Board, and a copy of same to be properly attested and presented to the family of the late Watson F. Blair."

On July 16 the Board of Trustees elected the present incumbent, Stephen C. Simms, formerly Curator of the N. W. Harris Public School Extension Department, as Director, and also as a member of the Board of Trustees, to fill the vacancies caused by Mr. Davies' death. The new Director also became a Corporate Member, and was elected Secretary of the Museum, which office had likewise been held by Director Davies.

At the end of 1928, Mr. Harry E. Hyman resigned from the Board of Trustees because of the change of residence to New York City. His resignation was accepted with regret.

At the December meeting of the Board of Trustees Mr. Fred W. Sargent and Mr. Samuel Inall, Jr., were nominated to fill the vacancies on the Board caused by the death of Mr. Blair and the resignation of Mr. Hyman. Final action on their election was scheduled for the January, 1929, meeting.

Further tribute was paid to the memory of the late Carl E. Akeley, to whom the Hall of African Mammals was dedicated in 1927, through publication in 1928 by the Museum of a portfolio of photographs of the principal stamps in Field Museum of Akeley's work in both taxidermy and sculpture.

There were few changes in the scientific staff of the Museum during 1928. Dr. Paul C. Standley, for another year Assistant Curator of the United States National Museum at Washington, D.C., joined the Staff of Field Museum as Associate Curator of the Herbarium. Dr. Ralph Linton and Dr. William M. McGovern, both of whom had been Assistant Curators in the Department of Anthropology, resigned. The position of Dr. George T. Allen was temporarily and he continued his work through the year as Assistant Curator of Egyptian Archaeology. Mr. Lloyd J. Williams of the Department of Mining was given the title of Assistant in Wood Technology. The late Dr. J. Eric Thompson, formerly Assistant Curator of Mexican and Maya Archaeology, was changed to Assistant Curator of Central and South American Archaeology.

A number of changes resulted in the personnel of the Junior Division and Junior League Edward Public School and Children's Lecture Division. Mrs. Dorothy B. Cackrell resigned as Clerk, and Mrs. Margaret Fisher Pratt, her sister-in-law, was promoted to fill her position. Mr. Edward C. Cook, guide-lecturer, resigned, and Mr. Cleveland F. Covert, formerly guide-lecturer, was appointed Acting Curator of the U. S. Harry Public School Extension Department. Three guide-lecturers were engaged to fill the vacancies on the staff. In the order of enrollment they are: Dr. Frank Foster, Miss Jane Work, and Mr. J. L. Herbel. Miss Margaret Cornell continued with the Division, assuming the Junior Ancient Egyptian.

The Museum has been concerned in having the wholehearted cooperation of the newspaper, and of various organizations in control of advertising media, in its campaign of publicity and advertising.

Generous space has been given the activities of the Museum in the newspapers of Chicago and the press of the country as a whole. The Museum has been advertised in posters displayed by local transportation companies, by space given in theatre and opera programs, and by the distribution of Museum direction folders through railroads, hotels, civic associations, and other organizations. Details of the publicity and advertising are given elsewhere in this Report. Grateful acknowledgement is hereby extended to those in charge of the various enterprises which have thus given generous assistance in promoting public interest in this institution.

A large amount of reconstruction work and improvement in the building was undertaken and completed during 1928. Of first importance was the preparation of the new halls on the ground floor, the opening of which has already been referred to. Involved in this work was the moving of the north wall of Hall J, containing the Egyptian collections, seven feet to the north, and the building of a new type of case 199 feet long on the north and east walls. A similar case thirty feet long was constructed on the west end of the south wall. These cases extend fourteen feet to the ceiling, and the upper parts are offset to form an upper overhanging case immediately above the view glass of the lower section. Illumination is provided within the case but entirely outside the range of vision. Installed in the lower sections are mummies on inclined benches and other ancient Egyptian relics, with fabrics stretched on frames on the back walls and tomb sculptures set flush with those walls. Installed in the upper cases are a seventy-seven foot facsimile of the funerary papyrus of Ani, and, occupying 116 feet, plaster casts of sculptures enameled and glazed with umber to bring out the detail. These cases follow closely in principle, construction and illumination the habitat group cases in the Department of Zoology, but their adaptation to anthropological material and the installation methods employed here are, so far as can be learned, an innovation in museum work.

A case thirty-six feet long for African wood carvings was built on the west wall of Hall D. Tile partitions were built along the south side of Hall J and on the south and east sides of Hall B (one of the new ground floor halls unoccupied as yet). The doors to the north of Hall J leading to the stairways and passenger elevator were removed, and the openings enlarged to the full width of the corridors.

Various partitions were removed and doors and transoms blocked up to make available for exhibition space areas previously used for

storage north and south of Hall K, unoccupied ground floor hall, and also north of the James Simpson Theatre. About three hundred feet of loose air duct were removed, and the fresh air inlets on the north wall of Hall J were connected to the fan under the north entrance. This reduced the route of travel for fresh air through ducts to Hall J by more than four hundred feet. The removal of this air duct, together with the removal of old steam mains and other discolored service pipes, made available the aforementioned storage space, some 11,000 square feet, for future ground floor exhibition halls. The removal of the old steam mains from the ceiling also made possible the construction of the new types of exhibition cases in Hall J and K, and, in fact, that every exhibition hall on the ground floor has been greatly benefited by the removal of the pipes.

Steam tunnels and trusses were painted with tarred rope-matting. Ceiling outlets for illumination in Halls D, E, G, H and J were fixed up. Those in Hall J were extended down the piers to provide for future individual case lighting. This, and the removal of pipe hangers, involved a great amount of plaster cutting and patching.

Halls D, E, F, G, H and I, and the corridors leading to the cafeteria, were painted. New shades were provided for Hall H. Two balcony fronts and three stained glass windows representing eighteenth century Egypt were repaired, gilded with light brown, and installed on the south wall of Hall J. Stucco cases in Hall K were provided with ground glass in their ceilings, and their interiors were painted in preparation for scenic backgrounds for future exhibits of marine mammal groups.

Much miscellaneous improvement and maintenance work was done in various parts of the Museum. Two bronze cases were provided at the south end of Stanley Field Hall for the installation of two Chinese leather books of towering height. Illuminating panels were installed in windows of Halls 8, 11 and 12. All window sashes were taken down, cleaned and retung in certain halls, and the walls where the drapes hung were cleaned. Five cases for labelled groups of Asiatic mammals were built in William V. Kelley Hall (Hall IV) and two such cases were built in Hall 16, devoted to labelled groups of American mammals. Illuminated case labels were provided for these and other similar cases. Six curtain walls were built between Halls 18 and 17. Illuminating ducts and trusses were fixed in place for the aerial and air rib groups.

A new system of individual case lighting in Ernest R. Coe Hall, and a system of beam lighting for the new scenic paintings in

that hall, were installed. New silverite glass was installed in the tops of cases.

Because of the inadequacy of space and the unsuitability of the former ground floor location of the X-ray studio, it was installed in more suitable quarters on the third floor. It now occupies a suite of three rooms—operating room insulated with lead sheeting, dark room, and office.

New sun curtains were installed in the photographic operating and printing rooms.

Much interior cleaning and painting was done, particularly in the Herbarium, and in Rooms 7, 40 and 108 on the third floor. Some 870 trays, with racks in steel cabinets, were constructed for bird and mammal storage, and many model cases and much other equipment necessary for the work of the various Departments were made.

On the roof of the building new skylight bars and ribbed wire glass were installed on the main skylight, except for nineteen rows of lights at the southeast corner which were placed in 1927. A large fan was installed at either end of the clerestory under the roof to circulate the air, as an added precaution to prevent condensation on the skylights. The terra cotta cornice and the court windows were tuck pointed. Four men worked full time cutting out loose mortar joints in the marble work and refilling them with cement mortar. All of the exterior window sills of the building received a coat of paint.

Western Union Time Service was installed during the year for the clocks at the north or main entrance, and at the entrance to the James Simpson Theatre. A new canopy was installed at the west door.

Under its agreement with the Shedd Aquarium the Museum began supplying heat to that building in December, when it was found that it would be needed for drying out purposes during construction.

## LECTURES AND ENTERTAINMENTS

GENERAL LECTURES.—The Museum's forty-ninth and fiftieth courses of free lectures were given in the James Simpson Theatre on Saturday afternoons during the spring and autumn months. These were illustrated by motion pictures and stereopticon slides. Following are the programs of both courses:



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- November 17—"Treasure Hunting in Bolivia."  
Lieutenant-Colonel Charles Wellington Furlong, F. R. G. S., Boston.
- November 24—"Under the Northern Lights."  
Commander Donald B. MacMillan, leader of the Rawson-MacMillan Subarctic Expedition of Field Museum, 1927-1928.
- December 1—"Civilization of the Mayas—Past and Present."  
Mr. J. Eric Thompson, Assistant Curator of Central and South American Archaeology, Field Museum; leader of the Captain Marshall Field First Archaeological Expedition to British Honduras, 1928.
- December 8—"The Turkestan."  
Mr. George K. Cherrie, member of the James Simpson-Roosevelt-Field Museum Expedition to Central Asia, 1925-1926.
- The total attendance at these nineteen lectures was 25,065.
- In addition to the regular spring and autumn courses, the following special lectures were given:
- January 14—"Birds and Animals of Alaska."  
Mr. William K. Finley, Director of Wild Life Conservation, State of Oregon.
- January 15—January 14 lecture repeated.
- January 22—"The Way of the Sperm Whaler."  
Dr. Robert Cushman Murphy, American Museum of Natural History, New York.
- January 28—"Explorations in Plant Life."  
Mr. Arthur C. Pillsbury, Berkeley, California.
- January 29—"The Malay Peninsula."  
Mr. Carveth Wells, F. R. G. S.
- February 11—"The Wonderland of Big Game."  
Major A. Radcliffe Dugmore, F. R. G. S., F. R. P. S., London.
- February 12—February 11 lecture repeated.
- February 26—"By Aeroplane to Pigmy Land."  
Professor Matthew W. Stirling, leader of the Stirling New Guinea Expedition of the Smithsonian Institution.
- October 21—"On the Roof of the World."  
Captain John B. Noel, London, official photographer of the 1924 Mount Everest Expedition.
- October 28—"Jungle Gods."  
Captain Carl von Hoffman, F. R. G. S., New York.
- November 4—"Excavations at Kish, Mesopotamia."  
(Work of Field Museum-Oxford University Joint Expedition, season of 1927-1928.)  
Mr. Henry Field, Assistant Curator of Physical Anthropology, Field Museum.
- November 18—"Ptolemy's Mountains of the Moon."  
Dr. James P. Chapin, American Museum of Natural History, New York.

- January 25—"Under the Northern Lights"  
Commander Joseph E. MacMillan, leader of the *Barrow-MacMillan Antarctic Expedition* of First Museum, 1925-1926.
- December 2—"Civilization of the Mayan—Past and Present."  
Mr. J. Eric Thompson, Assistant Curator of Central and South American Archaeology, First Museum, leader of the *Captain Matthew Peck First Archaeological Expedition to British Honduras*, 1928.
- January 8—"The Furman."  
Mr. George E. Charns, member of the *James Simpson-Brownell First Museum Expedition to Central Am.*, 1927-1928.

The total attendance at these special lectures was 17,599.

A special motion picture program, "Alaskan Adventures," given on December 15, was attended by 909.

**Concerts.**—A series of chamber music concerts was given by the Gordon String Quartet in the James Simpson Theatre, on the following Sunday Afternoons: February 5 and 15, March 11 and 19, and April 8 and 15.

On Sunday, May 13, Mrs. Elizabeth Sprague Coolidge sponsored a concert given by the Rose String Quartet of Vienna in the James Simpson Theatre. The total attendance at the seven concerts was 6,218.

#### EDUCATIONAL MEETINGS

The use of the Lecture Hall was extended to eleven educational and civic groups. These conferences were attended by a total of 4,286 persons.

#### RADIO TALKS

During the year, four radio talks were given by a member of the Raymond Division. Three of these were over WGN, the Chicago Tribune station, and completed the series of ten begun in November, 1927. One on "Ocean Life" was broadcast over WMAQ, the Chicago Daily News station.

#### LECTURE TOURS FOR ADULTS

As in previous years, the service of Museum publiclecturers was offered without charge to clubs, conventions and other organizations, and to Museum visitors in general. For the public 112 general tours and 125 tours covering specific subjects were arranged. Printed monthly schedules were kept at the south door for distribution to visitors. Hundreds of copies were sent at the beginning

of each month to libraries, social settlements, retail stores, and other centers of distribution.

There were seventy-five groups from clubs, conventions and colleges, and fifty-two other special parties, totalling 2,362 persons, who received guide-lecture service.

General public groups numbered 399, with 3,846 in attendance.

The total number of adult tours was 526, with an attendance of 6,208.

### THE JAMES NELSON AND ANNA LOUISE RAYMOND PUBLIC SCHOOL AND CHILDREN'S LECTURES

ENTERTAINMENTS FOR CHILDREN.—The James Nelson and Anna Louise Raymond Public School and Children's Lecture Fund made possible the continuation of lecture work among children, both in the Museum and outside in schools and camps.

Series of entertainments were offered as usual in the spring and autumn, and in addition summer and winter series were added this year. By arrangement with the South Park Commissioners, special children's tours and motion picture programs were conducted during eight weeks of the summer. The groups brought from the various parks and playgrounds of the South Parks system for this course of tours and motion pictures totalled 2,202 children.

In addition to the special summer series arranged under the auspices of the South Park Commissioners, Field Museum carried on during the same season a similar series under the provisions of the Raymond Fund. These programs were given special publicity in the local press, and invitations to send groups were extended to the various clubs maintained for children by Chicago newspapers, including the "Topsy Turvy Times" of the *Daily News*, "Junior Journal" of the *Journal*, "Boys and Girls Post" of the *Evening Post*, and the Sally Joy Brown groups of the *Tribune*. Ten such groups were given guide service, with an attendance of 447, and seven special motion picture programs, attended by 2,150 children, including both the newspaper groups and other children, were presented. The "Chronicles of America" series of motion pictures, a gift to the Museum from Mr. Chauncey Keep, were used for both series of summer programs.

The programs of the entire year were as follows:

#### SPRING COURSE

February 11—"Abraham Lincoln."

February 18—"George Washington."

February 26	10	"China"
March 7	7	"Long Day" "Search of Peace" "Search of Justice" "The Mississippi Book" "Science Book Vol. 2"
March 14	10	"Japan"
March 15	15	"Swedish People" "Swedish People" "Monkeys" "High in the Andes" "Flower and Horse"
March 18	18	"Annoted Edition" "The Fight for Life" "Temple of the Unknown" "Where the Moose Hunt Lanes" "Featured Images"
March 20	20	"Greece"
April 1	1	"An African Adventure" "The Far East" "The East" "Science Book Vol. 2"
April 11	11	"History of a Native American Indian" "The U. S. Coast Survey, American Museum of Natural History" "New York Museum"
April 12	12	"China" "Science Catalogue"
April 13	13	"Mount of the South Sea"
		Chinese Yachtmen
May 2	2	"Columbus"
May 4	4	"Columbus"
May 10	10	"The Far East" "The Far East"
August 7	7	"The Mountains" "The Country to the West"
August 8	8	"The World and Mountains" "The East of the Mountains"
August 17	17	"The Mountains of the Mountains" "Mountains"
August 20	20	"The Mountains" "The Mountains of the Mountains"
August 21	21	"The Mountains" "The Mountains of the Mountains"
		African Yachtmen
October 1	1	"The Mountains" "The Mountains" "The Mountains" "The Mountains of the Mountains" "The Mountains of the Mountains"
October 14	14	"The Mountains" "The Mountains of the Mountains"

- "Butterflies and Moths."  
 "Jungle Round-up."  
 "Children of the Sun."
- October 20—"The Sahara."  
 "Ants."  
 "Bees and Spiders."  
 "The Lion Hunt."  
 "Perfume and Nicotine."
- October 27—"Switzerland."  
 "Seaside Friends and Their Country Cousins."  
 "A Day at the River."  
 "Where Snowtime is Joytime."  
 "Mountain Climbing in Glacier National Park."
- November 3—"China."  
 "Down at Our Pond."  
 "In Birdland."  
 "Monarchs of the Plains."  
 "Our Four-footed Pals."
- November 10—"Argentina."  
 "Pirates of the Sea."  
 "Pets."  
 "The Story of Leather."
- November 17—"Peoples of the Mediterranean."  
 "Furry Creatures."  
 "Friends to Man."  
 "Secrets of the Sea."  
 "The Parasol Ant."
- November 24—"From England to South America."  
 "Preparing for a Garden."  
 "Palace of Honey."  
 "Golden Fleeces."
- December 1—"The Rhine Valley."  
 "Growing Things."  
 "Fruit and Flowers."  
 "Bird Sanctuary."  
 "Monarch of the Glen."

## WINTER PROGRAMS

- January 28—"Secrets of the Flowers."  
 (Mr. Arthur C. Pillsbury, Berkeley, California—lecturer.)
- February 22—"George Washington."
- December 15—"Alaskan Adventures."
- December 22—"Bre'r Rabbit and His Pals." —  
 "The Little Indian Weaver."  
 "The Wee Scotch Piper."  
 "The Little Swiss Wood Carver."  
 "The Little Dutch Tulip Girl."
- December 29—Entertainment by Chief Little Moose, a Chippewa Indian.

## SPECIAL

- November 12—Americanization Program.

Field Museum cooperated further with the South Park Commissioners by loaning certain films for showing in programs held at the various parks and playgrounds of the South Parks system.



Botanical specimens from the  
 collection of the University of California, Berkeley  
 (University of California, Berkeley)

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Not only have the children's departments of the Chicago newspapers cooperated in bringing the summer program before the attention of their young readers, but they have also given special publicity to the other series of children's entertainments in the spring and fall, in addition to that obtained in the regular news columns. The Chicago Evening Post in its children's department has reprinted some of the "Mammie Martin for Children" distributed at the entertainments. The "Times-Tribune Times" of the Chicago Daily News cooperated by using some of its features with the Mammie entertainments under a special arrangement.

On October 26 a meeting of both adults and children under the auspices of the Chicago Board of Education was held in the James Simpson Theatre. This civic assembly was most enthusiastically carried out. Forty local communities were represented, and men from the various organizations interested in the betterment of the city and its young world took part. The program closed with a group of historical pageants depicting the development of Chicago.

The total number of children's programs was forty-one. If to this number is added the attendance of 1,200 at the meeting at the Theatre on October 26, arranged by the Chicago Board of Education, to which came children from all districts of the city, the total number of children's groups which have been entertained is forty-two, and the total attendance is 48,045.

**Lecture Tours for Children.**—Lecture tours correlating with school programs or organized for a general knowledge of Museum exhibits have been given to groups from public, parochial and private schools of Chicago and surrounding suburbs. In all, 445 such groups totaling 17,302 children, received the service.

**Extensive Lectures.**—Extensive lectures were offered in elementary, junior and senior high schools of the Chicago public school system. The total number of schools visited was 174, and the total number of lectures given was 120. This includes the lectures presented in school classrooms for assemblies and those given to school clubs, at conferences, and at Field Museum. The total attendance was 19,628.

The titles of lectures were as follows:

"Mammie Martin for Children"  
"Mammie Martin for Children"

"Birds of the Chicago Area."  
 "African Animals."  
 "Food Fish of the World."  
 "Silk and Wool."  
 "Flax and Cotton."  
 "Coal and Iron."  
 "Activities of Field Museum."  
 "North American Indians."  
 "Glimpses of Chinese Life."  
 "What We Owe to South America."  
 "Life of the Ancient Egyptians."  
 "Life of the Native Philippines."

TOTALS.—If the number of children receiving instruction by means of entertainments, tours and lectures be added to the number of adults receiving similar instruction, the total reached by these Museum educational efforts in 1928 consists of 1,566 groups, numbering 307,161 individuals.

ACCESSIONS.—The Raymond Division acquired during the year, through the Division of Photography, 432 lantern slides for use in its public school extension lectures. Thirteen other slides were obtained by purchase, making the total number added to the collection 445. This brings the total number of lantern slides now available for school lectures to approximately 5,000.

The Chicago Chapter of the Wildflower Preservation Society of America kindly loaned the Museum a number of its lantern slides on wildflowers of the Chicago area, for reproduction, and plans for a lecture on this subject, to be added to the list of school extension lectures, were thus facilitated.

### NATURE STUDY COURSE

Preliminary steps were inaugurated during the year for a course in nature study to be given during the spring of 1929.

The course, as planned, will cover the topics most needed by those directing study of nature subjects in camps, school clubs, community organizations, et cetera. These will include studies of the animal, mineral and plant groups of the Chicago area, which will be discussed in the small Lecture Hall and followed by tours of correlated exhibits. The tours will be conducted by the guide-lecturers of the Museum.

Indications are that the course will meet the needs of many organizations, and it is hoped to make it a permanent part of the educational work of the Museum.

## PUBLICATIONS

In the regular series of Field Museum Publications, eight were issued during the past year, six of which were zoological, one paleontological, and one the Annual Report of the Director. In addition to these, one bulletin had appeared in the general index series, two in the technological publications, and two portfolios of photographs were issued. Following is a detailed list of these publications:

- PUB. 245.—Zoological Series, Vol. XIV, No. 4. Contents and Index to Volume XIV. Numbers 1 to 4. February 27, 1928. 70 pages. Edition 1,000.
- PUB. 247.—Zoological Series, Vol. XII, No. 14. A New Chronicle from New Guinea. By Karl P. Schmidt. February 28, 1928. 8 pp., 2 photographs. Edition 1,000.
- PUB. 248.—Report Series, Vol. VII, No. 2. Annual Report of the Director for the Year 1927. January, 1928. 282 pp., 21 photographs. Edition 1,000.
- PUB. 249.—Zoological Series, Vol. XV, Part III. The Marine Fauna of Ecuador. By Carl F. Moore (revised) and Samuel F. Hildebrand. September 1, 1928. 344 pp., 56 halftones. Edition 1,500.
- PUB. 250.—Zoological Series, Vol. XII, No. 15. A New Genus of Aquatic Rodents from Guyana. By Wilfred H. Ogilby. November 21, 1928. 5 pp., 1 photograph. Edition 1,000.
- PUB. 251.—Zoological Series, Vol. XII, No. 16. Reptiles Collected in Salvador for the California Institute of Technology. By Karl P. Schmidt. November 21, 1928. 12 pp., 1 plate. Edition 1,000.
- PUB. 252.—Zoological Series, Vol. XIII, No. 17. Notes on South American Caimans. By Karl P. Schmidt. November 21, 1928. 20 pp., 6 photographs. Edition 1,000.
- PUB. 253.—Archaeological Series, Vol. XVIII, No. 1. The Prehistory of Avonlea. By Herbert Lauer. December 5, 1928. 96 pp., 12 photographs. 1 plate. Edition 1,000.

## LEAFLETS

- Antiquities, No. 27. The Gravel in History and Art. By Barthold Lauer. March, 1928. 106 pp., 2 photographs, 1 cigarette, 25 text figures, 1 cover design. Edition 1,500.

## MEMORANDUM PUBLICATIONS

- Technology and Zoology. The work of Carl E. Anshutz at Field Museum of Natural History. A portfolio of 45 photographs, and text. Edition 1,000.
- Field Museum and the Girl. 24 pp., 5 photographs, 5 halftones. Edition 1,400.
- Field Museum Systems. An Editorial and Typographical Manual. 15 pages. Edition 200.
- Human Growth. Twelfth Edition. 22 pp., 1 photograph, 7 plates. Edition 1,800.
- Human Growth. Thirteenth Edition. 22 pp., 1 photograph, 5 plates. Edition 1,500.

To protect the Museum in the future from unauthorized use of material in some of its more popular leaflets and other publications, such as has occurred several times, it was decided to copyright all leaflets, and certain other publications. Copyrights were obtained during 1928 for "The Giraffe in History and Art," and also for the series of paintings on paleontological subjects presented by Mr. Ernest R. Graham, and photographs of these paintings.

### LIBRARY

During the year there were added 2,910 books and pamphlets to the Library. The total number now on the shelves is approximately 95,000.

The Library had the good fortune to obtain several rare items that have been desired for some years. Noteworthy among these are:

- Martius, *Flora Brasiliensis*, fifteen volumes in forty, 1840-1906.
- Karsten, *Florae Columbiana*, 1858-1861.
- Gesner, *Historiae Animalium*, Liber iii qui est de auium natura, 1555.
- Aiton, *Hortus Kewensis*, 1789.
- Flacourt, *Histoire de la Grand Isle Madagascar*, 1661.
- Brasseur de Bourbourg, *Etudes sur le Système Graphique et la Langue des Mayas*, 1869-1870.
- Azara, *Reise nach Sud Amerika*, 1781-1801.
- Rengger, *Reise nach Paraguay*, 1818-1826.
- Rochon, *Voyage to Madagascar and the East Indies*, 1893.
- Levaillant, *Histoire Naturelle des Promerops... Oiseaux de Paradis*, 1807.
- Spix, *Animalia nova sive Species Novae Lacertarum quas in Itinere per Brasiliam Annis MDCCCVII-MDCCCXX*, 1825.
- Daudin, *Traité Élémentaire et Complet d'Ornithologie*, 1800.
- Sodiolo, *Contribuciones al Conocimiento de la Flora Eciatoriana*, 1833, 1895.
- Apparent, *Traité de Géologie*.
- Haug, *Traité de Géologie*.
- Brinton, *The Annals of the Cakchiquels*, 1885.

The generous distribution of the Museum's publications has continued, and the Library has received in exchange valuable material from other museums, research organizations, scientific societies, and individuals, both at home and abroad. Among these were sets of publications from Naturforschende Gesellschaft, Basel, Switzerland; The Mining and Geological Institute of India, Calcutta; the Universidad Nacional de Tucuman, Argentina; Station Océanographique, Salammbo, Tunis, Africa; Departement van Landbouw, Nijverheid en Handel, Dutch Guiana; Dansk Geologisk Forening, Copenhagen, Denmark; Sociedad de Geografia Historia,

Continued: McGuffee's Library, Peeking Union, Annapolis; Orono College; Correspondence Council, Boston; Adams, Princeton University, New Jersey.

Through exchanges of duplicate material valuable books were obtained from the following libraries: McGill University Library, Montreal; University of Chicago Library; and Notre Dame Library, Notre Dame, Indiana.

Through the use of the system of interlibrary loans it has been possible to borrow books for the use of various members of the Staff from the libraries of Chicago, and also from libraries of other cities books that were not available in any of the Chicago libraries. The Museum Library has in turn extended its usefulness by loaning its books similarly to other institutions.

The list of the Museum Library was consistently strengthened by the gift of a collection of 600 Inland species, presented by Dr. Paul C. Maudslayi of the Department of Biology.

Dr. Daniel Bailey, of Pasadena, California, presented a set of his writings on birds and mammals.

During the year the final parts were received of the Oxford English Dictionary, a monumental work, the compiling of which has taken years. Also, the concluding volume, no. was received of the beautifully illustrated set, George Engelmann's Catalogue of the Classes, Orders and Families (ptery and pteridophytes), by Hillebrand.

There were written and filed in the various catalogs 15,400 cards. From the John Crerar Library were received monthly supplements of their author cards, totaling 7,511.

There were prepared, forwarded and returned from the library 344 volumes.

## EXPEDITIONS AND RESEARCH

Archaeology.—During the year no expeditions were operating in the interest of the Department of Anthropology.

The United States Field Five Archaeological Expedition to Eastern Honduras under the leadership of Edmund Condon L. Eric Thompson, was in the field from January to June. Mr. Thompson arrived at Belize, the capital, on January 9, and after a few days, during which he purchased arms and obtained the necessary permission for excavation, he left for Chetumal in the Cayo District, where he is a resident and during the time of the Mayan

Old Empire. There excavations were carried on until the middle of March. On the discovery of two new sites a few miles outside of this concession, Mr. Thompson returned to Belize and obtained a concession to excavate them.

One of these cities, to which Mr. Thompson gave the name of Tzimin Cax, is of great archaeological importance, for in it were found burials of the earliest known Maya period (roughly 200 B.C.-A.D. 200). Information on this early culture is very meagre, and material is scarce. As a result of operations at this site three important burials were discovered. Two of these graves yielded pottery of a type hitherto found only in the highlands of Guatemala. It had long been believed that an early culture flourished in this mountain area, but no direct connection with any other culture known had hitherto been found. These burials supply the evidence which had been missing of a stream of highland influence filtering into the Peten regions in early Maya times. Intensive excavation will probably throw more light on this early and little known phase of Maya history.

The second site, Hatzcap Ceel, and a third site, Cahal Pichic, discovered a month afterwards, represent the close of the Old Empire, and date some eight hundred years later. This was a period of transition, of which little is known. These sites of about A.D. 600 yielded a finely carved altar stone and practically all the jade that the expedition found. The altar stone is, so far as known, the only carved Maya monument with a legible date in the United States.

A third phase of culture, rich in pottery and shell work, is also represented at Tzimin Cax. This probably represents a period intermediate between the opening and close of the Old Empire.

Unfortunately, shortage of water forced the cessation of work after six weeks of excavation. The work throughout was hampered by the uncertainty of it. Members of the expedition were compelled to wait for occasional rains to make possible each few days of work. This uncertain condition also affected the labor supply. It was impossible to sign up the laborers, Maya Indians, for a month, because at no period during the six weeks did the water supply appear sufficient for more than a week ahead. These conditions were unusual, the previous winter having been exceptionally dry, causing the shortage.

After dispatching his collections from Belize, Mr. Thompson moved to the north of the colony, and began excavations among

some small ruins at Louisville, a few miles from Coronad, from which place he visited an interesting site on the Rio Honda, Mexico. As the Museum unfortunately had no commission to excavate on Mexican soil, he was unable to conduct any operations in this territory.

During his archaeological work Mr. Thompson collected ethnological data which will be incorporated in a publication he is preparing on the culture of the Maya Indians of central and southern Yucatan, Honduras.

Work in the Maya field has been confined so far largely to a search for fresh ruins. The results of such work do not add much to our knowledge. One of the objectives of the Captain Marshall Field Expedition was to seek pottery that would shed light on the interrelationship that undoubtedly existed between different Maya areas. So far the earliest Maya pottery known comes from a city which has been named Holmul, where, a number of years ago, a fine group of pottery vessels showing a high artistic skill was found. Mr. Thompson found several pieces including the early type of pottery.

This discovery enlarges the horizon of early Maya ceramic types, and gives a clearer idea of what types were contemporaneous at that early time. As a result of this expedition it will be possible in the future to date many sites by the similarity of their pottery to the one group of early types established. The same applies, although to a less extent, to the middle period. Here the horizon of contemporaneous pottery types has been considerably extended, although the exact place this horizon should occupy in the system of Maya chronology is not so certain. The expedition appears to have established for the first time the rarity of jade in early Maya times and its comparative abundance in later periods. This conclusion applies certainly to this area and probably to the whole Maya zone.

The second Captain Marshall Field Archaeological Expedition to British Honduras and Guatemala, also led by Mr. Thompson, left Chicago in the middle of December. During the first part of 1929 intensive work will be continued at the three sites discovered by the first expedition. Especial attention will be paid to Tuxtla Gutierrez, where it is hoped Maya history will be traced even farther back.

Assistant Curator William Dwyer Strong accompanied the second Marshall Field Expedition of 1927-28 as anthropologist.

gist. Starting June 25, 1927, from Wiscasset, Maine, the expedition arrived in Hopedale, Labrador, July 18. Dr. Strong carried on archaeological investigations on near-by islands, finding several burial cairns, skeletons, and typical Eskimo grave gifts. Piloted by an Eskimo, he visited the aberrant stone ruins at Sculpin Island, north of Nain. From the type of construction, evidences of whale-bone roof-beams, lack of fire-pits, and the known fact that typical Eskimo burials were located on near-by hills, the conclusion was reached that the stone walls represented an old Eskimo whaling camp. Later investigation in Frobisher Bay revealed indubitable Eskimo ruins of this type. On July 30, while landing stores at the station site, Anatalak Bay, the first Naskapi Indians were sighted.

A cruise around Frobisher Bay in southeastern Baffin Island occupied the time from August 7 to 28. In the western end of the bay at Bishop's Island and Koojesse Inlet, stone ruins of a type identical with those on Sculpin Island, Labrador, were examined. Eskimo artifacts found in situ clinched their identity. On the Sylvia Grinnell River a base camp of Nugumiut Eskimo, living in primitive style, was encountered. Lack of able interpreters as well as time prevented the securing of collections, but sketches and photographs were made. The men and able-bodied women of this band were in the interior (vicinity of Amadjuak Lake), but their kayaks and umiaks on the Jordan River were seen.

Old stone, sod, and whale-bone iglus were encountered on Brewster Point, but time for digging was lacking. A representative collection of modern Eskimo camp debris (old lamps, harpoon-points, bone work) was secured from a temporarily abandoned camp of the Nugumiut. On Kodlunarn (White Man's) Island the ruins of Sir Martin Frobisher's camp were examined, and some fragmentary objects collected. Following the expedition's return to Labrador, the time between August 29 and September 28 was spent working on the house that was to shelter the party during the winter.

From September 29 to October 15 a trip was made south to Jack Lane's Bay and up Hunt's River in search of a band of Naskapi-Montagnais Indians. Dr. Strong was accompanied by a local boy, who, it turned out, had never been in the region before and did not know the whereabouts of the Indians. In the interior traveling was done by canoe. Storms, swift water, many portages, and an unknown country rendered the trip very difficult. There were no signs of the Indians where they had been reported to be, and though Dr. Strong and his companion pressed farther into the interior, still none were

went. On returning from this trip Dr. Strong was held up in a snowstorm for several days. The storm passed, however, he was unable to leave camp early and was stranded at the head of Jack Lake's Bay, and a series of six other tributary arms and bays before he was released.

From October 22 to December 10 he was farming and being almost out to sea, making all travel impossible. The time therefore was spent on the house and cutting wood.

On December 11 accompanied by one man and a dog team, Dr. Strong began a four-day trip which took him some forty miles northwest of the station. There he found the camp of a band of Huron (Grand) Indians. Some information, photographs, and worth-while objects were obtained. Low temperatures ( $30^{\circ}$ ) and high winds made the journey formidable. It ended when the Indians turned on a side trail to the station. Owing to the bad condition of the ice, the period from December 14, 1927 to January 11, 1928 was used for study. Lack of an interpreter however, made study, when Indians were near, difficult and limited in scope.

From January 12 to April 5 the best work with the Naskapi Indians was accomplished. During that time Dr. Strong travelled with the Huron band, by the most part in the interior. Shushash, an Indian known to the whites as Joe Rich, acted as interpreter. Dr. Strong lived with him and his family, thus learning a great deal about all phases of their life. Covered in a line tent with some ten Indians, eating their food, helping them haul their toboggans, and hunting with them, Dr. Strong obtained a comprehensive idea of native life. They were some two hundred miles from the station and had traveled through a large area heretofore unvisited by white men. Temperatures as low as  $40^{\circ}$ , vermin, occasional periods when the Indians went on prolonged sprees on molasses beer, and at times lack of food, were the main hardships.

As the Naskapi depend almost entirely on migratory herds of caribou for food, their life is controlled to a great extent by the habits of these animals. Some fifteen years ago the Huron band people, who originally came from Northwest River, lived on Little Hope Lake with the Huron Grand band. It was then not extraordinary to kill a thousand or more caribou by spearing them when the main herd was crossing the lake on its annual autumn migration. Then, the great wilderness hunter, he had changed their mode, and now only a few comparatively small bands wander through the barren lands in the area.

According to the Indians, this happened because the deer smelled great heaps of bones left uncared for. The caribou, they say, told the caribou god of these bones, and he became very angry. He took all the caribou down into a distant mountain which the Indians call the Caribou House, the legend continues, and since then the Indians have been very hungry. Thus, they explain, they were forced to move to the coast where they could supplement their hunting trips with fishing, trade, and beggary. The Indians now are very careful to practise all the sacred rites pertaining to the caribou, thus hoping to make the caribou god relent. They are especially concerned about preventing the dogs from touching the head, horns, or long bones of the deer. They require that the sacred marrow used at the ceremonial feasts be eaten in the lodge, and the container cleaned at once. This is to prevent possible profanation of the deer by dogs.

The mythology of the Naskapi forms an interesting link between that recorded by Turner in Ungava and that by Speck in southern Labrador. The many references to southern animals, mere names to these people, and the contents of the myths which refer to such things as palisaded villages, suggest a rather recent northerly movement of the people. The fact that Indian place names, especially towards the coast, seem to be comparatively scarce, while they use Eskimoan or white men's names for rivers and lakes, confirms this suggestion.

A mythical people, called the Katcimedgeezue, are greatly feared by the Naskapi. These people are said to come far into the lonely interior in magical tall-bowed canoes and to steal Naskapi children. Their whistling may be heard by the common people, the Naskapi say, but they are invisible except to the Naskapi conjurers who pretend they can see them and drive them away by the aid of their own powerful spirits. This would seem to be the northern version of the tales inspired by the fierce Iroquois, who in early times drove the Naskapi to the north. Dr. Strong reports that the interior of Labrador is so utterly desolate and lonely that it is small wonder that the Indians believe it to be the abode of these and a host of other malevolent spirits.

The Naskapi Indians do not seem to regard certain areas as belonging exclusively to certain bands. Each has a huge region, that of the Barren Ground people including some thirty thousand square miles, totally unoccupied save by about one hundred Indians. Should one band be markedly successful in the hunt, or should

caribou, he abundant near them, they are visited by these less fortunate. The bands are loose organizations of kindred, and are constantly shifting population. Marriage is accompanied by no ceremony, but is usually monogamous. It must be between people who are not related in any close degree. An exception to this rule, however, is the Indian marriage of one kind of unusual, technically termed consanguinity. This custom is strictly collected in such kinship terminology, and has important sociological bearings.

Their implements are simple, and except for modern rifles and amn, are largely made of wood. The Indians, unlike the Eskimos, always cook their food. The dependence on timber is the main factor preventing their moving further north into the treeless area where the main hosts of caribou seem to be present. The art of these people finds its best expression in painting on skins, although some wood and bone carving is done. Strange to say, their art symbolism seems to be very slightly developed. So far as could be established by exhaustive investigation, art is almost entirely intended for decoration, not for magical or religious purposes.

When the Indians are caught out in a storm or on treeless barren grounds, a heap of snow is piled up and allowed to freeze for half an hour; it is then hollowed out with a snowshoe, and deeply bedded with spruce boughs if they are available. When all the Indians are inside, the door is sealed shut. Possibly the Indians may have been influenced to build these houses through seeing Eskimo skin-built snow-houses, but the construction of the Indian house is entirely different. The type is unique, and it is the first record of a house built entirely of snow among any Indians. The investigator's stay with the Indians was terminated by their return to the coast because of scarcity of caribou in the interior.

In April the expedition moved to Hopedale, where some seventy-five Eskimos were measured, and blood tests were made in cooperation with Dr. E. E. Langford, physician of the expedition.

A trip to Nuuk was made from April 24 to May 2, during which more than a hundred Eskimos were measured. Full data on hybridization were secured from the Moravian Mission records.

From May 2 to 18 the western portion of Uman and Hahne were visited. All people encountered at these stops were measured. Various tests were investigated at Umanigvik on the western peninsula. Shading led make the return journey difficult and somewhat hazardous, especially about the ice on the Great Water lake in the Kigdluk Mountains was breaking up.

The time from May 19 to June 19 was spent at the station, because melting ice prevented travel. Studies and measurements of some twenty-five Indians were made, and some Indian material was collected.

From June 20 to July 4 an excursion was made in a canoe for about fifty miles over the difficult Hunt's River route to investigate a stone age Eskimo ruin reported by the Indians. Many ancient Eskimo stone implements were secured, and the ancient Sharp Hill quarry (head of Jack Lane's Bay) was thoroughly investigated.

During the period from July 5 to 22 stone age Eskimo sites at Windy Tickle and sites of the early Mission period (about 1770) were excavated at Spirit Island and Hopedale.

From July 27 to August 10 archaeological investigations of islands east of Nain were continued, partly by motor-boat and partly by canoe. On these excursions the cooperation and assistance of Messrs. Frank Henderson and Novio Bertrand, two of Commander MacMillan's aids, were of great value. Excavations were made in early Mission period ruins at Natcutuk, Ivalik, and Nukasujuktok Islands. About twenty old Eskimo graves and gift cairns were studied, and their contents secured.

The cultural remains encountered during excavations on the northern Labrador coast indicate two main periods of Eskimo occupation of the region between Port Manvers and Hopedale.

The first is a stone age culture, found in small camp sites exposed by wind or water erosion, which are marked by well-chipped chalcedony, quartz, or flint points and blades, ground-stone pot fragments, adze-blades, a gouge, and stone ulus. There is a notable absence of bone or ivory work. Some small fragments of fossilized bone were found at these sites, but no worked bone implements. The majority of these sites are on the coast, but one old site which is identical was found some fifty miles up Hunt's River.

An old native quarry of colorless chalcedony, its lower exposures covered by two feet of moss and soil, was discovered at the head of Jack Lane's Bay. Hammer-stones and characteristic stone implements were found in the bare wind-eroded exposures near-by. This quarry marked the only occurrence of chalcedony known in the region, and the site shows evidence of extensive work. The character of the stone ulus, adze-blades, and of one steatite charm indicates that the makers were Eskimoan. The presence of the gouge and the type of chipped stone points indicate a relationship with the



Wrestling between a man and a bear, a common sport in the mountains of the United States. The man is wearing a loincloth and the bear is wearing a collar. The scene is set in a natural environment with trees and foliage in the background.

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ancient remains of Kona Island and the adjacent mainland. It appears that the very early Indomalayan Polynesian culture may be related to the Eastern and the early European stone age cultures to the west. Such a close relationship between Indian and Chinese remains would seem to have several important implications which are not yet clear.

The second Polynesian culture is much later, and may be denoted as that of the Early Maori period. It is characterized by large rectangular stone, soil, and whale-bone huts, similar to those at Bora-Bora, Tuvalu Island. Walls made of woven palm and gill nets are on the high ridges behind the villages, and usually well made stone hearths with sliding stone ash covers are associated with the groups. The objects recovered from the huts and the gill netting show much greater use of bone and ivory than in the earlier period, and also advanced work in shell.

Practically all the village sites examined at Honoahu, Siquil Island, Rapa-Nui, Easter Island and Uapouhina Island, revealed considerable evidence of early contact with white men. A superficial examination of the Polynesian artifacts from these latter areas suggests certain close cultural connections. In conclusion it may be said that a long Polynesian occupation of southeastern Easter Island is indicated by the old stone culture, which continued straight until the last and very exciting culture of later times.

The Tanager, Marshall Field Archaeological Expedition to Western Europe, under the leadership of Assistant Curator Henry Ford, left Chicago on July 4, 1900. Although the expedition completed its work in 1900, Mr. Ford has in with in other expeditions, and will return to the Museum until October, 1901, consequently, little final material could be made of that expedition's accomplishments in the Director's Report for 1901, and a more detailed review of its work is therefore presented in this Report.

The purpose of the expedition in Europe was primarily to gather quantities of prehistoric artifacts and data such as would be of assistance in the installation of a proposed Hall of Prehistoric Man.

Before leaving for Europe, Assistant Curator Ford conferred with Professor W. L. Hootch of the Peabody Museum, Cambridge, Massachusetts, on questions of measurement of physical anthropology. Mr. Ford then spent the European summer the work of collecting data and material was begun. Mr. Ford obtained valuable advice and assistance from Professor W. Arthur Smith, President of

the Royal College of Surgeons, and Professor Elliott Smith of University College, London, in connection with studies of Neanderthal man. Mr. Frederick Blaschke, of Cold Spring on Hudson, New York, sculptor who accompanied the expedition, made a model of the Forbes Quarry Gibraltar skull of a Neanderthal woman, under the supervision of Sir Arthur, with the original skull before him. The Chapelle-aux-Saints cranium was taken as a model for Neanderthal man and a similar work of reproduction accomplished. The sculptor also made a one-fifth scale model of a Neanderthal man, with Sir Arthur and Professor Smith giving many valuable suggestions. Plaster casts of several Neanderthal skeletal remains were purchased to aid the sculptor. Books and other sources of information were placed at his disposal. These models will be of use in carrying out plans for the proposed hall.

The members of the expedition next proceeded to Paris, where they were joined by Abbé Henri Breuil, professor at the Institut de Paléontologie Humaine, who had agreed to act as scientific adviser. Mr. Pierre Gatier of Paris was engaged as artist, and Mr. Henri Barreyre as photographer. Headquarters were established at Les Eyzies in the Dordogne region of southwestern France. Mr. D. Peyrony, Director of the Les Eyzies Museum, kindly granted the expedition permission to collect data and to make photographs, motion pictures and color sketches in and about the famous rock-shelter of Cap Blanc, whence came the skeleton of a Magdalenian young man which the Museum obtained in 1927—the only complete adult paleolithic skeleton in the United States. Samples of the earth covering the rock-shelter were secured, and pieces from the wall were obtained for the use of Field Museum.

Cap Blanc was visited, and Abbé Breuil and Mr. Field spent much time examining collections of prehistoric objects excavated by farmers living near-by. Upon the recommendation of the Abbé, Mr. Field purchased the Castanet collection, which includes a remarkable Aurignacian necklace from La Souquette. This necklace is composed of beads made from mammoth ivory, shells, perforated teeth, and small pebbles, and is approximately 35,000 years old. All noted prehistoric caves in the region were visited to aid in selection of material for future exhibition, and several small collections were purchased. The art staff then proceeded to Mas d'Azil and made photographs, motion pictures, sketches and two models.

At the invitation of Professor Hugo Obermaier of the University of Madrid the expedition visited the renowned cave of Altamira

near Barcelona in northern Spain. Several small collections were purchased in their neighborhood. Even in the Aztec period were collected. Miss Dwyer and Mr. Field then started the case of Cuzco and gathered together information which will be of use in one of the exhibits planned for the proposed hall.

Mr. Field, accompanied by his art staff, took several parties to Arizona's great alignment of mounds at Canyon, where some of single stone mounds are four or five miles. This is believed to have been in ancient times a great temple dedicated to the sun. An extensive series of photographs was taken, numerous sketches were made, and other data were collected. Recently, data on these mounds were obtained at Lake Neuchâtel, Switzerland.

Valuable assistance was rendered the expedition by Miss Dorothy Cawell, of Oxford University, who discovered a Sumerian cliff's station at the palatial city called Devil's Tower, of the Mesopotamian period, at Gilgamesh, where Assistant Curator Field had made some studies in 1925.

Dr. Henri Martin of Paris, who discovered in 1922 a tomb of animals definitely belonging to the Sumerian period, kindly granted to the expedition the privilege of acquiring the only set of mummy mounds from the first world. No other set has been permitted to leave France. The animals are shown, carved in relief, and all fossils. Included is an interesting scene in which a cow, with several heads, is chasing a man.

The Field Museum-Oxford University Joint Expedition to Mesopotamia, headed by Captain Marshall Field and Mr. Herbert Field, completed its sixth season at Kish, working from the beginning of December, 1927 to April 1, 1928. The field director was again Mr. L. C. Wadsworth. He was assisted by Messrs. Henry Field and Eric Schepherd. The general supervision of the work was as previously, in the hands of Professor August Langdon of Oxford University.

During the season of 1926-27 trial trenches had been dug into the western portion of the great temple complex at Hammurabi, the north garden, to the western side of the temple, adjacent. These trenches exposed and proved the mounds with soil platforms of the temple-tower, but did not reach any of the lower levels. During the following season, 1927-28, under the direction of Mr. Wadsworth, it was decided to clear a large rectangular area in the area in which the temple was presumed to be located. During the season under consideration, 1927-28, it was possible to clear the soil to a depth

of five meters over an area of about a hundred square meters. The center of this area revealed a building designated in the records as Monument Z, which contained practically no objects. Although it was located beneath the Arab remains, it was above the culture stratum attributed to the period of Sargon I.

The general plan for this season was to clear a limited area down to water level, and to make an effort to obtain objects of cultural importance belonging to the earliest inhabitants of Kish. It was also imperative to secure skeletal material that would contribute to solving the problem as to the physical characteristics of the early inhabitants of Mesopotamia. The work was carried on with a force of about two hundred workmen and basket-boys. A light railway system consisting of eight small trucks was employed for the removal of the earth of the mounds above the plain level. Below this, basket-boys were used, and a space about ninety meters in length and thirty meters in width was excavated down to a depth of fifty feet below the original surface of the mound. At this point water was reached, and further digging was impossible.

Continuing below the magnificent temple of Nabonidus, erected toward the middle of the sixth century B.C., an almost sterile red stratum which covered the entire area at this particular depth was reached. Just above this red layer was found a female skeleton with a thin gold headband in place around the skull. There were numerous large pots with handles emblematic of the mother-goddess, so characteristic of cemetery "A," excavated by the expedition during its second season. From another grave, presumably that of a princess, were brought to light a beautiful lapis-lazuli and gold necklace, copper hairpins surmounted by figures of cow heads, and a variety of beads, silver earrings, bracelets and other jewelry. In the red stratum, which divides the upper and lower layers, were found two lapis-lazuli cylinder seals with clearly cut inscriptions, which Professor Langdon has been able to date at about 2950 B.C. As the work continued down toward water level, it was obvious that everything to be found below this red stratum was prior to 3000 B.C.

Human skeletons occurred in all the various levels, and Assistant Curator Field spent every day with two Arab workmen, especially trained for this kind of work, in the task of removing the earth from the bones, applying to them a thin coat of wax, and packing them in wooden boxes preparatory for shipment to Chicago. Accurate records were kept of the exact level in which each skeleton was

found, together with the objects discovered with the skeleton. Drawings and sketches of the positions of the objects were also made. Fragments of more than two hundred skeletons were sent to Chicago. The condition of the bones as water level was approached became decidedly worse, and in several cases it was impossible to preserve them.

The general culture encountered in the lower levels differs markedly from that of the layers overlying the red stratum. There was a quantity of pottery, many pieces representing new forms. There was a definite transition to a newer and richer stone culture, and trappings of very fine stone tools found in association with the skeletons were obtained. Only one small fragment of gold wire was found below the red stratum. There was a complete absence of grained stones, although there were numerous beads of new fabric, particularly a skirt or girdle of long beaded beads from the center wheel of a large shell assumed to have been brought from the Persian Gulf. Part of the external wheel of this shell was cut off, and the shell itself was used as a primitive form of hoop. A number of bronze objects were assembled, including a long knife in the shape of a solid copper bar with greenish bluish lacunae, suggesting from the color of the back a vertical vein terminating in five points.

The two most important objects discovered in the lower levels are remains of two chariots, one with two wheels, another with four. The former was drawn by bulls. There were several human skeletons lying in various positions inside the low-walled enclosure above in the wheels of this chariot. The wood of the wheels was disintegrated, and had become almost as thin as paper. Around the edge of each wheel were copper nails. Some weeks after the discovery of the two-wheeled chariot the four-wheeled one was discovered. The skeletons of four animals that had apparently drawn it were lying on either side of the post. They had evidently been sacrificed with their master. Between two of the animals was found a shaft terminated by a metal bar and supporting the huge wheelbarrow by a small copper ball, through which passed the axle. This very important discovery gives a new and precise light on the period of transport in use about 2500 B. C. The excavation of the wheels and body of the chariot was a slow and difficult process, occupying nearly three weeks. The wood was in a very fragmentary condition, and it was only by applying sixteen coats of oak varnish over its surface that it could be preserved. The timeliness of the chariot enabled the museum that it was exposed to the air, but Mr. Watson

succeeded, by using meticulous care, in determining its dimensions and general technique.

According to his report, the wheels consist of wooden planks kept in place by a rim, and strengthened on both the outside and the inside by wooden cross-pieces measuring two and three-eighths inches in diameter. The rim is covered with copper nails at close intervals. The axles supported a platform which had a copper border at the anterior end, and wooden semicircular sideboards.

Close to the four-wheeled chariot was found a copper saw, probably used for cutting the wood of the wheels. There were also several human skeletons lying in this vicinity, and one complete skeleton in a very good state of preservation was recumbent on the slope some ten feet away from the rear end of the chariot.

At the close of the season the work of cataloguing and packing was completed after the division of the objects with the Irak Museum, represented by Mr. R. S. Cooke, Honorary Director of Antiquities for Irak.

During the season a comprehensive series of photographs was taken at Kish. An interesting motion picture of the work in progress was also made. Mr. Schroeder and Mr. Field also took numerous photographs illustrating the season's activities and the general progress of the excavations.

The most remarkable discovery of the season, according to Professor Langdon, is a new prehistoric culture, not Sumerian, but allied to Sumerian, equally old and entirely distinct. This new culture represents a people characterized physically by a side hair-lock worn over the right ear and falling from the crown of the otherwise completely tonsured head. They produced finely painted pottery both in one color and in yellow, black, and red. The pottery was wheel-made and decorated almost entirely with geometrical designs, although a few naturalistic motives of animals occur, connecting this culture directly with early Elam.

In 1926, Jemdet Nasr, which lies eighteen miles northeast of Kish, yielded many fragments of painted pottery and some complete painted jars and tablets of an archaic type. Mr. Watelin decided to continue excavations there in March, 1928, with a force of two hundred workmen accompanied by Messrs. Field and Schroeder. The workmen, after removing an enormous quantity of earth, found hundreds of fragments of painted pottery and some complete jars, as well as some pictographic tablets in linear script, seals of various

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artistic types, and four fragmentary human skeletons in a poor state of preservation.

An illustrated report by Professor Langdon on his recent work at Kish was published in *Art and Archaeology*, November, 1926.

In June, 1928, Mr. Field returned to Kish with Mr. Howden, assistant in photography, to make a series of anthropometric measurements of the present-day inhabitants of the Kish area. In three weeks, during which the temperature reached a maximum of 123° in the shade, and the minimum was 30°, more than five hundred Arabs were measured. Front and profile photographs were taken of them, and a hair sample of practically every one was obtained. This work was done with a view to comparing at some future date the people now living in the Kish area with the ancient Sumerians and Semites, and it is of particular value because no other large anthropometric series from Mesopotamia is available. More than two thousand photographs of physical types were taken.

As a result of the discovery of flint implements of prehistoric types by Messrs. L. H. Dudley Houston and Henry Field in 1925 between Arman in Transjordan and Bagdad, an appropriation was made for the continuation of this archaeological survey, known as the Captain Marshall Field First (November, 1925) and Second (April to June, 1927) Archaeological Expeditions to the North Arabian Desert, led by Assistant Captain Field. A seven-passenger touring car was purchased, and a desert driver was hired to the expedition by the Nile Eastern Company in Damascus for the season of November, 1927. Thanks to the cooperation of the Air Ministry in London and particularly to Group Captain Ross, V.C., himself a keen archaeologist, the first expedition was allowed to accompany an armed air patrol into the desert. Flint implements, individually chipped by man, were collected from about twenty-five surface pits at various points in the desert. At Fair Wells limestone of Upper Chalkian type was obtained from the gneiss, an unexpected discovery. The expedition proved the existence of man in a prehistoric phase of culture in the now almost featureless desert of North Arabia between the Hejaz Railway and Bagdad. The old idea that this region formed a geographical barrier to migration is disproved.

Through the kindness of the Air Ministry in London and Air Headquarters in Bagdad, and on invitation of Major A. L. Holt of the Turkish Petroleum Company, the second expedition was allowed to accompany a desert survey party. The conditions permitted

consisted of Messrs. Henry Field, Eric Schroeder, S. Y. Showket, and G. Vania. For part of the way the expedition accompanied an armored car patrol, and was thus able to visit many important sites within an area containing a hostile population. Thousands of flint implements were collected from more than three hundred new sites. A large number of photographs was taken, and all the Roman and Arabic ruins were recorded. One of the most interesting places visited is Qasr Burqa which lies on the eastern border of the great Harrat er-Rajil and was the easternmost outpost of the Roman Empire. The ruins were mapped in detail, and more than two hundred photographs were taken. Detailed information on numerous historical ruins was obtained. Photographs of the Bedouins and their tribal life were made whenever possible.

In addition to the objects collected, and the data gathered bearing upon ruined buildings, information of great value concerning hundreds of miles of desert land was obtained. Notes on the topographical nature of the country traversed, the additional information and corrections which can be placed upon the new maps, and the deduction that this was once a well-watered and fertile area inhabited by man, all resulting from this expedition, add materially to the existing knowledge of the North Arabian Desert.

A preliminary archaeological survey was made in northeastern Irak between Kirkuk and Mosul in an attempt to link the chain of prehistoric surface sites in the desert with northeastern Irak. Caves were reported from near Rowanduz and Akkra, and it seems plausible to suggest that some of the prehistoric peoples passed through these gorges or to the south at Suleimania, where search is now being made for traces of paleolithic man.

Mr. Field returned to Chicago on October 3.

A great amount of research has been accomplished during the year by present and past members of the Staff of the Department of Anthropology. The results of many of these researches have already been received in manuscript, and others have reached an advanced stage so that the preparation of manuscript for publication may be expected in the not distant future.

Professor A. L. Kroeber, Research Associate in American Archaeology, has been engaged for two years in a technical investigation of ancient Peruvian fabrics collected by him during two expeditions to Peru on behalf of the Museum. He is aided in this work by a textile expert, Miss Lila O'Neale, of the University of California. Each fabric is analyzed as to technique, color scheme, pattern,

seats, stoves, and tools. There are often from three to six natives employed in one fabric. Some of these appear to be new to science. When the observations have been completed, they will be classified according to area and period. It is hoped that in this way not only a better idea of the range and variety of Peruvian textile art will be obtained, but also some ideas of its historic development from early to later periods. A feature of the art which is already outstanding is the combination of seemingly simple techniques for weaving with apparent attainment of genius. Professor Rindler expects to have a manuscript on Peruvian fabrics ready for publication during 1929.

Professor Roy L. Moxley, the well-known paleo-anthropologist, submitted a portion of his manuscript entitled "Koenigswald's evaluation of disease and injury in ancient unopened mummy-pouches from Egypt and pre-Columbian Peru, in Field Museum of Natural History." This investigation is based on roentgenographs made of Egyptian and Peruvian mummies in the Division of Roentgenology of the Museum.

James O. Collins & E. Lewis completed a study of Malaccan shell money. Malacca is notable for the great variety of shell money formerly in use in many parts of the region. The Museum is fortunate in having in its collections examples of most of these varieties, many of which are quite rare and undescribed. The study in question gives a general account of the use of shell money throughout Malacca, the distribution of the different varieties, the methods of manufacture, and a description of all specimens in the Museum's collection.

Dr. Ralph Linton, formerly an assistant curator of the Museum, and now associate professor of anthropology in the University of Wisconsin, has completed about one-half of the first of a proposed series of ethnological studies based on his work as leader of the Captain Marshall Field Expedition to Malagascia. The first study deals with the Tsimba, a people who live at Malagascia. The Tsimba live in the dense rain forests of the eastern mountain slope of the island and have been little influenced by European contact. Their arts, industries, social organization, and religion still retain practically their original form, and they offer an unusual opportunity for the study of a primitive culture still in full vigor. Their culture appears to be archaic, retaining many features which had disappeared elsewhere even at the time of the first European contact.

A leaflet dealing with the use of tobacco in Africa has been prepared along lines which coordinate with a series of five leaflets on tobacco published some years ago. A chapter on the introduction of tobacco into Africa has been written by Curator Laufer. Assistant Curator W. D. Hambly deals with African customs relating to tobacco, while the use of tobacco in Madagascar is presented by Dr. Ralph Linton. This subject presents many points of interest which center around the growing and manufacture of tobacco, the making of pipes and snuff boxes, and many quaint customs connected with smoking.

The manuscript of a study of the painted pottery and other objects found at Jemdet Nasr has been received from Mr. Ernest Mackay, and will shortly be published in the Memoir Series of the Museum.

Assistant Curator J. Eric Thompson prepared a manuscript on the ethnology of the present-day Mayas of British Honduras.

The results of the Captain Marshall Field Expedition to Colombia of 1922-23 were submitted for publication by its leader, Dr. Alden Mason, now of the Museum of the University of Pennsylvania.

Dr. William M. McGovern, formerly an assistant curator in the Department, and now of the faculty of Northwestern University, completed a manuscript on the ethnology of the Gran Chaco region.

The Curator, Dr. Berthold Laufer, made a study of the history of the game of polo in Asia for which he has collected an abundance of illustrative and documentary material from Persia, China, and India, and continued his researches into the domestications of animals, three of which are now almost ready—the cock, the cormorant, and the cat. The last-named investigation will definitely settle the problem of the first appearance of domesticated cats in Asia and the varieties of cats produced in the Far East. Corresponding with his "Prehistory of Aviation" and "Prehistory of Television," Dr. Laufer is planning to write five more prehistories—those of telegraphy, electricity, paleontology, meteorology, and the refrigerator.

Professor F. E. Wood, of Chicago, availed himself of the opportunities offered by the Department's study room, and examined all Peruvian skulls in the Museum's collection, measuring 362 of these and making notes on teratological and pathological conditions found.

**BOTANY.**—The major exploration work of the Department of Botany during the past year was the Captain Marshall Field Expedi-

tion to Panama, conducted by Mr. G. Proctor Cooper, field assistant of Yale University School of Forestry, who has had wide experience in expeditionary work in Central America. For this expedition the Museum obtained the cooperation of the New York Botanical Garden, and of the School of Forestry of Yale University, through the interest of Professor Samuel J. Record, Associate in Wood Technology in Field Museum. The work of the expedition was facilitated by substantial assistance rendered by the United Fruit Company of Boston.

Mr. Cooper worked in Panama from December, 1927, until the first of April, 1928. Most of his time was devoted to exploration in the Province of Bocas del Toro, on the Atlantic coast, where he collected from 222 trees series of specimens illustrating wood and other botanical characteristics. Many of these were previously unknown to students of woods. In April he collected thirty-one wood specimens around Ferrol, in the Department of San Blas.

The value of his wood samples was greatly increased by the fact that botanical specimens showing the leaves, and when possible the flowers and fruits, were also collected from most of the trees. This makes possible the accurate identification of the woods.

Around Chiriqui Costa Rica, Mr. Cooper obtained many more different kinds of woods and shrubs, and in Bocas del Toro 178 of similar plants. The expedition brought back about two thousand botanical specimens which have been stored with the other botanical specimens. The results of this undertaking were most satisfactory, the Museum acquiring a valuable series of woods and a large number of botanical specimens from a region hitherto almost without representation in its collections.

Several papers have been published by Professor Record and Mr. Cooper detailing the results of the expedition. Among the woods obtained chief interest attaches to a fine slab of the "jacque lignum," which has been placed on exhibition in the Field Hall. This tree, previously unknown to science, has proved to be an unidentified new *Bravaisia* species, a near relative of the famous *lignum* of the Guianas. It is one of the hardest woods in the world. The latvies report that latvies, pulvies, sand at running water properties and its possession is restricted to the chief of the tribe "Carnegie lignum," as it is known to the Indians, is not obtained from living trees, but from old trees which have been burned in the forest fire until nothing remains but a core of dense lignum.

The herbarium specimens have been studied and determined by Associate Curator Paul C. Standley, who has found them to be of exceptional interest. They include representatives of two new genera, about sixty new species of trees, and one family of plants—the Quinaceae—unknown heretofore north of South America, besides several published species of trees which had not been collected before in Central America. No other recent collection of plants from middle America has proved so rich in new or rare species.

Mr. Llewelyn Williams, Assistant in Wood Technology, proceeded early in the year to Yale University where every facility was afforded by the School of Forestry to select specimens from the duplicate collection of tropical woods in that institution. At the same time he made studies of certain tropical woods, and the results of the investigations were published under the title "Studies of Some Tropical American Woods" in the September issue of "*Tropical Woods*," the publication issued quarterly by the Yale University School of Forestry.

The Department shared in one Museum expedition, the Rawson-MacMillan Subarctic Expedition. Messrs. C. S. Sewall and A. C. Weed assembled 678 specimens of plants, mostly from Labrador. The collection, added to those obtained by the same collectors in previous years, gives the Museum an excellent series from a region imperfectly known botanically.

As an indication of the extensive use which is being made of the Herbarium for research purposes, there may be cited twenty-nine papers published during the year. Some of these were prepared by the Staff of the Department of Botany, some describe the results of Museum expeditions, and others are based, at least in part, upon material in the collections of the Department.

Professor Samuel J. Record, Associate in Wood Technology, published in *Tropical Woods* a paper of twenty-seven pages listing the trees obtained in the region of Bocas del Toro by the Captain Marshall Field Expedition to Panama, 1928, and also a list of the trees collected by the same Expedition near Permé, Panama. The vernacular names are given for most of the trees reported, and the two papers form an important contribution to the knowledge of the forests of Central America.

Associate Curator Paul C. Standley published in *Tropical Woods* five short papers describing new species of Central American trees represented in collections received for determination by Field Museum. He published also in *Science* a brief article descriptive

of Lauretella Experiment Station, Honduras, in the vicinity of which he made a large collection of plants during the winter of 1927-28.

AMERICAN CONGESS J. YERGEN, *Macbride*, published in *Tropical Woods* an account of the newly discovered YERGEN mangrove tree. In the same journal Mr. Williams published a detailed account of the growth of most species of trees from Costa Rica, Panama, Colombia, and Venezuela.

Mr. G. Proctor Cooper published in *Tropical Woods* two papers describing the results of the Captain Marshall Field Expedition to Panama. The first, entitled "Some Interesting Trees of Panama," speaks of several important timber trees, among them the handsome blackwood vine, a few each of which recently was placed on exhibition in Stanley Field Hall. The second paper by Mr. Cooper is a descriptive account of the forests of western Panama.

In *Tropical Woods* for March 1, 1926, under the authorship of Mr. David A. Keils, there appeared an important account of "The Pernand Collection of British Guiana Woods," covering forty pages and based upon a collection made for Field Museum in 1923-24 by Mr. A. C. Pernand. There are enumerated sixty-eight species of woods, belonging to sixty genera and thirty-two families.

Mr. H. C. Beeks published in *Rhodesia* two papers describing native and other plants, based upon material in the Museum Herbarium. Dr. E. E. Shaff, in continuation of his studies of the genus *Banksia*, published in the *Botanical Gazette* a paper describing several new species and varieties whose types are in the Herbarium of Field Museum.

Among other writers who have published papers based partly upon Field Museum collections may be mentioned Dr. E. F. Blake, who described ten new species of *Werneria* and *Diplazophloeum* whose types are in the Herbarium; Mrs. E. W. Cronquist, who described a new rose in a paper appearing in *Rhodesia*; Mr. Elsworth P. Killip, who published seven new *Persea* plants collected by the Captain Marshall Field Expedition to Peru; Mr. C. E. Kuhnold, whose monographs of *Aechmeaceae* list many Field Museum specimens; Dr. Francis W. Pennell, whose paper upon "Agaveae and Allies in North America" cites numerous Museum specimens, especially from the central states; and Dr. B. L. Robinson, who designated as types of certain new South American species of *Milium* specimens in the Herbarium of Field Museum.

The determination of unnamed collections received during the year occupied much of the attention of the staff of the Herbarium.

The most important collection studied was that made in Panama by Mr. G. Proctor Cooper of Yale, which required several weeks because of the large number of new or rare species which it contains. A paper describing the new species was prepared and is now in process of publication.

During the year many lots of plants were received from correspondents for determination, and these have been named and in most cases added to the Herbarium. A large part of the most valuable and desirable material received during the period under review was acquired in this manner. Material requiring determination was received from many portions of the United States, and from Mexico, British Honduras, Guatemala, Salvador, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Peru, British Guiana, and Venezuela. Among these collections there were many interesting and unknown plants of which descriptions have been prepared for publication.

In order to make possible the accurate determination of the Museum's collection of tropical American plants of the family Rubiaceae, a group which yields coffee, quinine, ipecac, and other useful products, there were borrowed from the larger herbaria of the United States, through the courtesy of their curators, several hundred specimens of the family. These are being studied by Associate Curator Paul C. Standley who is preparing an enumeration of the Rubiaceae of Colombia, Ecuador, Peru and Bolivia.

A flora of the Yucatan Peninsula, which it is expected will be ready for publication during the coming year, has been brought nearly to completion by Associate Curator Standley.

Assistant Curator J. Francis Macbride has been able to devote a satisfactory amount of time to study of the collections of the Captain Marshall Field Expeditions to the Peruvian Andes. These collections, supplemented by those of Dr. A. Weberbauer, Mr. Carlos Schunke, and other collectors, are serving as the basis of a comprehensive list of the flora of Peru, now in course of preparation. During the year manuscript has been prepared for several of the larger families.

In the determination of Illinois plants Mr. H. C. Benke, of Chicago, contributed generously of his time, naming specimens sent by correspondents to the Museum for determination, and revising the identifications of specimens already in the Herbarium. Dr. Earl E. Sherff, of Chicago, has continued in the Herbarium his studies of the Compositae, particularly in the genus *Bidens*, and



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ing determined virtually exact. Museum material, thus increasing its value.

From the Bartholomew tract were sent out in 1919, in exchange, 4,574 specimens of plants. This material consisted in large part of duplicates from the U. S. Department of Agriculture collections, but included also a substantial number of specimens from the United States.

The loans made from the Bartholomew during the year amount to 4,822 specimens. Many of these have appeared in different groups of tropical botanical plant and in material for botanical research by the faculty of the Museum. Among those who have responded to the announcement of official material are Mr. Edwin D. Barlow, of Portland, Pennsylvania, in person; Professor Oskar Kuhn, of the Imperial Museum of Harbin University, in person; Dr. E. L. Robinson, of the Gray Herbarium of Harvard University, and Dr. C. F. Blake, of Washington, D. C., in correspondence; Dr. William Trelease, of Urbana, Illinois, in person; Dr. William E. Mason, of the United States National Museum, in person; Mr. Elsworth F. Kelly, of the United States National Museum, and Dr. Ivan M. Johnston, of the Gray Herbarium, in various groups of South American plants; Dr. C. L. Shreve and Mr. John R. Harvey, jun., of the United States Department of Agriculture, in person; Mrs. Agnes Chase and Dr. A. S. Hitchcock, of the Department of Agriculture, in person; Mr. Lyman B. Smith, of the Gray Herbarium, in correspondence; Dr. N. L. Britton, of the New York Botanical Garden, in various groups; and Dr. M. A. Howe, of the same institution, in person.

Of the more important loans sent out, need would be given to permit making the study of the material sent in accordance. 1,400 stems of grasses of the genus *Protophila* to Mrs. Agnes Chase, who is preparing a monograph on this genus; 100 specimens of *Phlox*, to Dr. Edgar T. Wherry, of Washington, D. C.; thirty-seven specimens of *Monarda*, to Dr. H. A. Gleason, of the New York Botanical Garden; 134 specimens of *Lobelia*, to Dr. Michael Henry Munn, of Vasing, in study by Dr. F. E. Wimmer; 120 specimens of South American plants to the Imperial Museum of Berlin, and twenty-five specimens of *Agave*, to the Missouri Botanical Garden, St. Louis.

It is especially pleasing to note the increasing use that is being made of the Bartholomew. This loan made to various individuals prove that the importance of the Museum's collection and the

nized elsewhere, and the same fact is indicated by the large number of correspondents who forward material for determination. Frequent requests are received, also, for the names of local plants brought to the Herbarium by visitors from the Chicago district. By mail there are received numerous requests for information covering many branches of botanical knowledge, requiring the expenditure of much time to furnish the necessary data. The Department of Botany has assisted in the work of other Departments of the Museum by supplying information upon botanical matters.

The Herbarium has enjoyed visits during the past year from a large number of botanists of the United States and foreign countries who came to study the collections or to make the acquaintance of the Herbarium and its Staff.

Dr. J. S. Enander of Lillhardal, Sweden, one of the leading authorities of the world upon the willows, spent two weeks in the Herbarium, studying the *Salix* collections and annotating them. Dr. Enander was commissioned by the Swedish government to make a trip around the world for the purpose of studying willows and obtaining living material of them for introduction into Sweden, where they are used for basket making. With the assistance of the Staff of the Department and friends of the Museum he obtained a collection of cuttings of the willows of the Chicago region for shipment to Sweden. The death of this noted willow specialist, within a few weeks of his visit to the Museum, is noted with regret.

Mr. Charles C. Deam, State Forester of Indiana, Bluffton, Indiana, visited the Herbarium twice in order to obtain data for use in the preparation of an account of the grasses of his state. Dr. Cristobal Hicken, of Buenos Aires, one of the leading botanists of Argentina, visited the Museum in June, to familiarize himself with the Herbarium and the plant geography of the Lake Michigan dunes. Dr. C. R. Ball, of the United States Department of Agriculture, studied the collection of American willows, upon which he is an authority. Professor Edgar Anderson, of the Missouri Botanical Garden, St. Louis, studied the Iris collection, and Mr. R. E. Woodson, of the same institution, studied the American plants of the family Apocynaceae. Mr. H. Teuscher, of the Morton Arboretum, Lisle, Illinois, visited the Herbarium in order to identify specimens of woody plants. Mrs. Eileen W. Erlanson, of the University of Michigan, studied the collections of American roses.

Mr. G. S. Willerick, of the University of Washington, Seattle, was engaged for the greater part of the summer in the study of the species of *Agave*, a group of *Conopseus*, and he visited the Museum's extensive collections in this group. The Museum borrowed from other institutions a large number of specimens for use in the preparation of his monograph.

Among other visitors to the Herbarium were Dr. Wilson Peckham, Director of the Lacandon Expedition Station of the United Fruit Company of Yale, Honduras; Professor F. L. Steward, of the University of Illinois; Mr. G. Doctor Cooper, of Yale School of Forestry; Professor H. E. Clark, of Catholic College, Northfield, Minnesota; Professor L. A. Koenig, of Kansas, Moline; Mr. E. J. Peck, of the Arnold Arboretum, Jamaica Plain, Massachusetts; Dr. Ivan M. Johnston, of the Gray Herbarium of Harvard University; Dr. Albert W. Hays, of United States University, California; Mr. William N. Clark, of Indiana University, Indianapolis, Indiana; and Mr. Edwin R. Hartman, of Seattle, Pennsylvania. Several students of the University of Chicago also made use of the Herbarium.

CHRONOLOGY.—Assistant Curator Stuart K. Roy, after completing his work as a member of the Rawson-MacMillan Antarctic Expedition, went to Newfoundland in charge of a special expedition provided for by the Captain Marshall Field fund. There he continued the work of collecting fossils and other geological specimens which had been begun in the previous year in Labrador and Baffin Land.

The winter months he spent chiefly in preparing, labeling and putting the specimens from Baffin Land and Newfoundland that had been obtained in the year previous. A preliminary study of the Baffin Land fossils indicates that the fauna is of a later period than had previously been supposed. It is expected that the complete study of the material will throw much light on the paleontology and stratigraphy of the Ordovician period in the Arctic.

Since the nature of many of the specimens was delicate stone, their preparation required considerable time, but by painstaking work a few more were made ready for study and exhibition. Cleaning was resumed early in the spring and was continued until the middle of August. The area chiefly investigated in Newfoundland was the so-called "sawm region" which included the "Acadia Peninsula" and that region lying between the eastern boundary of Cape Charles Bay on the northwest coast and the Bay d'Amherst on the south coast. The west coast was also traced.

The locality at Manuels gave the best results, more than four hundred specimens of the fossils of Upper and Middle Cambrian age being obtained there. In all, about two thousand specimens were collected during the season. These belonged to the classes Lamellibranchiata, Annelida, Gastropoda and Trilobita. A large proportion are trilobites of Middle and Upper Cambrian age, and because of their antiquity and rarity they are an important addition to the Cambrian collections of the Museum. Their importance is further increased by the fact that preliminary studies indicate that many new genera and species will be found among them. Remarkably good preservation characterizes most of the fossils. The Cambrian fossils are of unusual interest also because many of them can be closely correlated with those of Massachusetts, New Brunswick, Great Britain, France, Spain, Bohemia and Scandinavia. These correlations indicate definitely that an open marine passage existed between northeastern North America and northwestern Europe during Middle Cambrian time.

A comprehensive collection was made also of the ores and minerals of Newfoundland, twelve different localities being represented in the specimens secured.

At Sydney, Nova Scotia, Mr. Roy rejoined the Rawson-Mac-Millan Expedition on its return trip, and reached the Museum early in September. All the specimens which he obtained are of species new to the Museum collections.

Through the courtesy of Judge George Bedford of Morris, Illinois, an opportunity was afforded to send Mr. J. B. Abbott of the Museum paleontological staff to visit several localities in Kansas, Nebraska, South Dakota and Colorado from which vertebrate fossils had been reported. Judge Bedford not only generously donated the use of his car, but accompanied Mr. Abbott on the trip to these localities. The first point at which collections were made was near Winona, Kansas, where remains of a large Mosasaur had been reported to the Museum by Mr. Mentor Etnyer of the Etnyer Survey. This locality yielded a skull, lower jaws, paddle bones and some other skeletal parts of the large Mosasaur, *Tylosaurus*, all of which were carefully excavated and shipped to the Museum.

A find of the horned dinosaur, *Triceratops*, near Camp Crook, South Dakota, was next investigated, but the specimen proved to be too poorly preserved to warrant removal. The party then proceeded to the well-known locality for fossil mammals at Agate Springs, Nebraska.

Then Mr. James Cook, owner of the property, kindly gave permission to excavate. About thirty cubic yards of stratum were blasted out and removed in order to reach a level-bearing rock. From this a slab seven feet long, four feet wide and fourteen inches thick was removed intact. The slab contains thickly scattered bones of *Miocene rhombomys* and associated animals. It is planned to exhibit this slab as a whole, after carefully exposing the bones to view. Besides this slab, five excellent skulls of the post-tarred rhombomys, *Interatherium*, were collected at the locality. The party then proceeded to Hunter Marsh, Illinois, where another find had been reported by the Hayden Survey. A few reptilian bones were obtained there. The collection resulting from six weeks spent in the field in these localities is of much value.

Associate Curator Henry W. Nichols made a brief trip to the oil fields at Lawrenceville, Illinois, in order to obtain data, sketches and photographs for use in constructing a model of an oil well for exhibition at the Museum. Through the kindness of Dr. M. M. Leighton, Chief of the Illinois State Geological Survey, Mr. E. R. Fritz of the Survey, who was thoroughly familiar with the field, was detailed to accompany Mr. Nichols and assist him in securing data. A number of the important wells in the district were visited, and about thirty photographs and many sketches showing details of the machinery and other features were made, all of which will be of much assistance in securing accuracy and instructiveness in the model.

Several series of fossils from those collected by the Captain Marshall Field Paleontological Expedition in South America have been placed in the hands of specialists for study and description. Dr. W. J. Woodworth of Princeton University has completed the study of *Lamna* of *Neomammaloceras* collected by the second expedition, and has collected the manuscript of his study for publication by the Museum. Dr. W. A. Scott of Wisconsin University has in preparation an extended description of the latest mammal *Stenobolodon*, an account of which a large part of a skeleton was obtained by the second expedition. His study will be published by the Museum. Dr. C. E. Wagoner of Yale University had in hand a series of the bones of an *Arctomys*-like rodent, probably of *Thomomys* age, collected by the first expedition. The study of which is expected to throw much light on the origin of the genus. Dr. Woodward sent a note to the Museum during the summer in the study of these bones. The results of his studies it is expected will soon be available for

publication by the Museum. The fossil bird remains collected by the second expedition have been placed in the hands of Dr. A. Wetmore of the United States National Museum for study and description, and a report of his conclusions is expected shortly.

Dr. James H. C. Martens, the geologist of the First Rawson-MacMillan Subarctic Expedition, completed his studies of the series of sands which he collected in the regions visited, and his results are now in course of publication by the Museum.

An illustrated lecture on mining in South America was given during the summer at the Museum by Associate Curator Nichols to members and guests of the local section of the American Institute of Mining Engineers. Associate Curator Elmer S. Riggs gave a lecture, during the Museum's spring course, on the fossils of the Valley of Tarija, Bolivia.

The Curator and members of the Staff devoted a not inconsiderable amount of time to answering inquiries received by letter and in visits. Information was furnished in this way to 350 correspondents and sixty visitors. These requests were largely for identification of minerals and fossils, but more general information also was often sought.

ZOOLOGY.—The zoological work of the Rawson-MacMillan Subarctic Expedition of Field Museum was largely devoted to fishes and to efforts to obtain exhibition material of the larger mammals, such as seals and polar bears. The expedition reached Nain, Labrador, late in July, 1927, and after a period of unloading, sailed on August 9 for a three weeks' stay in Baffin Land, where a circuit of Frobisher Bay was made. Opportunities for zoological collecting were very limited, and only a few specimens could be collected at this time. After returning to the station, near Nain, all hands were required for the work of building winter quarters. Freezing weather then set in.

Fishing through the ice was begun in January and carried on until about June 1, whenever weather permitted. Nets were set in the bay early in June and tended regularly during that and the following month. Dredging with a small dredge was done in July and August with very satisfactory results.

Meanwhile, hunting and trapping for birds and mammals were carried on, and much time was devoted to hunting seals, a number of which were secured. Polar bears were not found in the vicinity of the station, and members of the expedition were not able to secure

specimens directly, but information was obtained by means of which specimens suitable for use in the preparation of a faunal group were acquired. The collection of smaller mammals, although on large numbers very desirable material. The same is true of the birds. Animal life on land was exceedingly scarce and difficult to obtain, having been subjected to one of those periodic depletions so well known in northern latitudes.

The result of the fish collecting was much more satisfactory. All the more common fishes were obtained in suitable quantity, and most of the rarer ones. The number of fish specimens is 1,500. Full notes on the habits, distribution and peculiarities of the fishes were taken, and excellent color sketches were made from the fresh material. A general collection of marine invertebrates, numbering 2,400 specimens, was preserved, together with a small number of insects.

Zoological collecting in India was continued by Colonel J. C. Fawcett, from whom several specimens of large mammals have arrived. These include several examples of sambar deer, axis deer, Indian antelope and such like, fitting well the faunal group to be installed in William F. Kellogg Hall, named in honor of mammals. In addition to group material, Colonel Fawcett obtained several valuable specimens. In the systematic collection among these being examples of the Indian flying deer or sambar, and the four-horned antelope.

Three large and important new zoological expositions were organized during the year, all starting within a period of a few weeks in October and November.

The William F. Kellogg Insectaria Exposition in Eastern Ave. of Field Museum, which had been in preparation for some months, left the United States at two o'clock, the first sailing from New York November 10, and has arrived near Vancouver B. C., December 10. The exposition is the outgrowth of continued interest in Field Museum and its insectary collections on the part of the Indians, Colonel Theodore Roosevelt and Father Browson. It is planned on a smaller scale to that of the previous Insect Inquiries Exposition Against Extinction, and will undertake suggestions which, in a certain sense, will supplement and enlarge those of that exposition.

The exposition is sponsored and financed through the generous contribution of Mr. William F. Kellogg, president of the Motion Picture Trust and Manufacturing Company. Mr. Kellogg, previously identified with Field Museum as a Fellow, has been

added to the list of Benefactors. The first division of this expedition is being led by the Roosevelt brothers personally. Accompanying them are Mr. Suydam Cutting of New York, who will act as photographer, and Mr. Herbert Stevens of London, England, zoological collector. These four men expect to work northward near the Tibetan border in the provinces of Yunnan and Szechuan in south-western China. This is an exceptionally rugged, mountainous country in which travel is likely to be slow and laborious. Thence, turning southward along the gorges of the Mekong River, the party will descend into northern French Indo-China where it will meet the second division. This second division has the following personnel: Mr. Harold J. Coolidge, Jr., of Pride's Crossing, Massachusetts, mammalogist and division leader; Dr. Josselyn Van Tyne, of Ann Arbor, Michigan, ornithologist; Mr. Russell W. Hendee, of Brooklyn, New York, mammalogist and artist; and Dr. Ralph E. Wheeler, of Cambridge, Massachusetts, physician and naturalist. This division will work intensively for some months, mainly in the northern and western parts of the province of Tonkin in northern French Indo-China. Much of this region is wholly unknown zoologically, and it is proposed to make a thorough study of its whole vertebrate fauna.

The two divisions of the party, after meeting in central French Indo-China, will proceed as a body to the province of Cambodia for a collection of large mammals to complete the needs for habitat groups in William V. Kelley Hall. The expedition will remain in the field during the greater part of 1929. It enjoys the cooperation of the Paris Museum of Natural History and the British, French, Chinese and Siamese governments.

The second important zoological expedition which set out in 1928 is the Crane Pacific Expedition of Field Museum, sponsored and accompanied by Mr. Cornelius Crane, who is a son of Mr. Richard T. Crane, Jr., a Trustee and Honorary Member of Field Museum. The expedition is traveling on Mr. Crane's brigantine auxiliary yacht, the *Illyria*, recently built and especially fitted with laboratory, refrigeration, diving gear, and other equipment for zoological collecting. The party is as follows: Assistant Curator Karl P. Schmidt, of Field Museum, herpetologist and scientific leader; Dr. A. W. Herre, of Stanford University, ichthyologist; Dr. W. L. Moss, of Harvard University, physician and immunologist; Mr. Walter A. Weber, of Field Museum, artist and ornithologist; Mr. Frank C. Wonder, of Field Museum, taxidermist. Three friends of

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Mr. Frank van Dinegout, the secretary, and will take charge of correspondence and act as secretary to the executive staff. They are Mr. Nelson Marshall of Kansas, Mr. Walter Fairbrother of Kansas, and Mr. Charles E. Tracy, of Maine, Atlantic.

The expedition will leave Seattle on November 18, after stops at Bismarck, Bala, and Tacoma, it crossed the Pacific. The route will cover most of the islands of the Pacific and the East Indies. The principal ports being Honolulu, Managua, Tahiti, Papeete, New Hebrides, New Guinea, Melbourne, Sydney, Darwin, London, India, Java, Saigon, Saigon, Yunnan, and Japan. The trip will occupy about two years, and collections in nearly all branches of aviculture will be made. Events occurred in the past year to his effect that a bird club of only a few birds in Paris had been very successful in making in the preservation of some 100 species.

The first new avicultural expedition is the Harold Wilkeside Coast-Mountain Expedition of Field Museum which left New York in October. This is financed partly by Currier Harold A. Wilkes of New York City and Major John Currier of Arizona. Richard, both of whom announced the expedition. A third principal member is Mr. C. J. Albrecht of Field Museum's staff of technicians. Mr. George E. Cary, Jr., of Baltimore, Gen. is a member of the party. In addition, there are several professional photographers from England and Germany who will make a special photographic record of the expedition's operations.

The object of the expedition is the general biological collection of southeastern Alaska to the coast of Mali, and over Lake Hood and Pelly, a region which was not reached by the recent Field Museum-Chicago Study Group Expedition. A special objective will be made in a large number of the mountainous areas, which has been of importance in this region, and which is the most and most important of the region. The route of the expedition, therefore, will be southward from Lake Hood to Mali, and thence to Lake Hood and around the north end of Lake Hood. In this manner, the party will cross, the Albrecht taking the western with ornithological collections in addition to Keweenaw and returning via Seattle, while Currier Wilkes and Major Currier will northward through the province of Keweenaw, passing through the White River and the White River.

King Taku, Malakoff, in which Field Museum is already engaged by Henry Dyer in connection with its general Alaskan

ian expedition, has again been most courteous in according privileges and facilities for travel. This is deeply appreciated.

The Department of Zoology had the following publications in press at the close of the year, as the result of research conducted by members of the Staff:

Zoological Series, Catalogue of the Birds of the Americas, Part VI, by C. E. Hellmayr.

A Contribution to the Ornithology of Northeastern Brazil, by C. E. Hellmayr. Leaflet Series No. 10. The Truth About Snake Stories, by Karl P. Schmidt.

Leaflet Series No. 11. Frogs and Toads of the Chicago Area, by Karl P. Schmidt.

The Department acknowledges very substantial assistance from Volunteer Assistant Charles Westcott, who has been in full time attendance, and has catalogued 3,676 birds, read and corrected proofs of several lengthy manuscripts, and otherwise aided in carrying on the routine of the Department.

Following the general growth in recent years, the Staff has met with a great increase in miscellaneous routine which has made great inroads upon the time of every member. The demands from the public for information or assistance by letter, by telephone, and in person are vastly greater than formerly. Increased activities in exhibition work, in the conduct of expeditions, and in relations with other Departments of the Museum and with visitors from other museums both American and foreign, all combine to keep the Staff fully occupied.

The following list indicates the various expeditions in the field during 1928:

LOCALITY	COLLECTORS	MATERIAL
KISH, MESOPOTAMIA . . . (Sixth season)	Stephen Langdon L. C. Watelin Henry Field T. K. Penniman René Watelin	Archaeological collections
BRITISH HONDURAS . . . . (Two expeditions)	J. Eric Thompson	Archaeological collections
NORTH ARABIAN DESERT . . . . .	Henry Field Eric Schroeder	Archaeological collections
PERU . . . . .	A. Weberbauer	Botanical collections
PANAMA . . . . .	G Proctor Cooper	Botanical collections
NICARAGUA . . . . .	F. C. Englesing	Botanical collections
NEWFOUNDLAND . . . . .	Sharat K. Roy	Paleontological collections
ABYSSINIA . . . . .	Captain Harold A. White Major John Coats C. J. Albrecht George E. Carey, Jr.	Zoological collections

Alaska.....	James E. F. Partridge.....	Zoological collection
Alaskan and Russian Lands.....	Alfred C. Wood Alfred C. Wood Arthur C. Nesbitt Stuart R. Lee William Howard Young Charles A. Smith E. R. Langford, M. D.	Anthropological, zoological, zoological and zoological collections
Northwestern Asia Two contingents.....	General Fleming Rose and Capt. Robert (General) David Langford, M. D. The Hon. Langford Robert Langford Joseph Van Dine Ralph P. Webster Russell W. Shuman	Zoological collection
Farther Siberia and East Russia.....	Carlisle (The) Earl P. Shuman W. L. May, M.D. Albert W. Shuman Charles H. Shuman Sidney N. Shuman Murray Shuman Walter A. Shuman Frank C. Shuman	Zoological collection

Leader of expedition named first in each case.

\*Leader, second contingent.

## ACCESSIONS

**ETHNOGRAPHY**—Acquisitions received and recorded during the year by the Department of Anthropology amount to \$11,000. Of these amounts are by gift, eight by exchange, and six by purchase. These amounts are from numerous parts of the world and aggregate a total of about 30,001 objects. The principal acquisitions of the year are herewith briefly reviewed.

The collection secured by Assistant Curator Irving as anthropologist of the Russian-MacMillan Siberian Expedition of 1925-26 consists of some 250 objects from Yakutia anthropological sites, 100,000 ancient and modern Russian carvings and sculptures, 100 hundred ethnological objects from the Chukotka Indians, and about thirty-five ancient Russian skeletons or parts thereof.

The archaeological material uncovered in the main two periods relatively far apart in the history of the Labrador Eskimo. First, there are a large number of very ancient stone implements including both the chipped and polished stone techniques. Some specially shaped harpoon-points of stretched chert and several

ground-stone ulus, or women's knife-blades, are the most interesting. The second period is that of the earliest Christian missions on the coast (about the year 1770). Bone and ivory harpoon-points, well carved soapstone dishes and lamps, caribou antler implements, and abundant beads or carved ornaments are particularly well represented. In addition there are a number of iron tools and hunting implements of an early type.

A small collection of artifacts from the modern Eskimo serves to bring this representation of ancient Eskimo life up to the present time. The skeletal material from ancient graves will be of great value in determining the physical characteristics of the older people on the coast, and when compared with the large series of modern Eskimo measurements secured by the expedition, will show the modifications that have taken place due to hybridization and changed conditions of life.

The collection from the Naskapi Indians illustrates nearly all phases of the life of these interesting and primitive American hunters. Their clothing is well represented, including their finely painted coats and leggings. Naskapi beadwork, which was obtained in considerable quantities, is remarkable both for its beauty and for the unique character of the designs, which seem to be rather different from the general type of northeastern Indian art. Wooden bows and crossbows, arrows of various types, stabbing spears for killing caribou in the water, and fishing implements, all serve to demonstrate the manner in which the Indians secure a living in their barren environment. The crossbows are of especial interest as not being truly native, but as having been copied from European examples in colonial times.

Skin-dressing tools, native types of knives, well-made snowshoes, toboggans, games of various sorts, and a large number of drawings made by the Naskapi themselves complete the collection. These sketches will be of great interest to the student of Indian art, depicting as they do the life of the people as they themselves see and portray it. On the whole this collection, in conjunction with a similar collection purchased from Dr. Frank G. Speck of Philadelphia, who secured it from the Montagnais of southern Labrador, will give the Museum a very representative exhibit of this culture area.

A small collection of articles of clothing, household utensils, and snowshoes from the Penobscot Indians, Maine, who are closely related to the Naskapi, was purchased also from Dr. Speck, who

obtained it as the result of an ethnological investigation of this tribe.

A basket basket, a pair of beaded moccasins, and a girdle beaded with spotted fringe, from the Sioux Indians of Dakota, were obtained through purchase.

The collections obtained by the Captain Marshall Field First Archaeological Expedition to British Honduras under the leadership of Assistant Curator Thompson are more comprehensive than any ever made in that country in one season. They consist of about 120 objects, shells of pottery, stone, bone, coral, obsidian, and shell. Larger pale objects were found in various caches buried in the tops of temples, and were probably placed there as dedicatory offerings on the completion of the pyramids. One of the finest pieces of the kind is a small pale mass, showing a Maya head in profile probably worn as a head-dress. Examples were obtained of ear-plugs, which the Mayas wore in the lobes of their ears. These were made of jade for the wealthier and of pottery for the poor. Bone ornaments and feather penicillata were inserted in the holes in the center of the ear-plugs.

The area explored by the expedition proved to be rich in objects of shell. Weapons were very rare. Obsidian, which was imported from farther north, also was rare. Coral traded from the coast was found at one of the native caches, and was undoubtedly much prized by the Mayas. The pottery obtained by the expedition is of great value in making possible establishment of a sequence of periods in the development of Maya civilization.

Of a Maya stone cache found at Hahang Cuel, a person unfortunately is missing, and the fact of its loss to the Museum shows a very well carried cache, probably the victim to be sacrificed on the dedication of the monument. The Mayas had a custom of entering a tunnel to mark the passage of events like the birth. The altar in question was erected to commemorate the birth of five years from the opening of the tenth cycle. A series of carefully carved glyphs in a very good state of preservation gives the following record: 12 Ahau 18 Uuc. The position that this occupies in the long count is 10,013,000. There follows a dot 7 Ahau which presumably represents the preceding K'atun ending, and eight together representing date 10,000,000.7 Ahau 18 Uuc. This date was computed to February 18, a. d. 863.

The words of the glyphs appear to indicate an earlier date, for they are carefully carved, but possibly be this intentional rather

art continued to flourish at its highest level long after signs of decadence were making their appearance in other cities. There are now known to have been a series of cities with dated monuments running along the north and south line, which now forms the frontier between British Honduras and Guatemala. In the north are situated Cax Uinic and Benque Viejo, in the center Hatzcap Ceel, and in the south Pusilha, where a series of stelae were discovered during 1927 by a Field Museum expedition.

Through the generosity of Mrs. Chauncey B. Borland of Chicago the Museum obtained one of the most remarkable objects received this year—a fossil turtle of the Miocene period found in Shen-si Province, China. The carapace of the turtle is covered with six delicately traced inscriptions revealing the earliest stage of Chinese script which is identical with that found on the famous oracle bones of Ho-nan. The tortoise, in the estimation of the ancient Chinese, was a divine animal endowed with supernatural qualities and the gift of predicting the future. At a very remote period the shell of the tortoise was one of the chief elements in the art of divination. The shell was scorched over a fire, and the cracks thus arising yielded a picture foreshadowing future events. The oldest forms and examples of Chinese writing are preserved on tortoise-shell fragments containing questions addressed to soothsayers and the answers given. An examination made of the fossil turtle by Assistant Curator Karl P. Schmidt, of the Department of Zoology, showed that it represents an unknown species of the genus *Testudo*. Thus it has a bearing on three sciences—paleontology, zoology, and archaeology.

Important additions were made during the year to the Museum's collection of ancient Chinese jades. Mrs. William H. Moore of New York (formerly of Chicago) contributed twelve choice archaic pieces of the Chou and Han periods: an outstanding mace of dark gray jade clouded with brown and russet spots and decorated with the seven stars of the dipper; a ceremonial axe-head of yellow jade engraved alike on both sides with delicate tracings of animals and geometric designs; another axe-head of light gray and green translucent jade, of very early date; a unique disk of green and brown jade decorated on both sides with different designs derived from the ornamentation of archaic bronzes; two green jade dragons, one from the late Wu Ta-ch'eng's renowned collection; a semicircular double dragon; a gray jade carving of a tiger; three jade carvings of fishes of naturalistic style, and a very rare spike of brown and yellow jade in the form of a pyramid.

Nine remarkable pieces of jade are part of another gift received during the year. They include a magnificent plaque exhibiting a dragon-face vigorously carved in high relief, an unusually large gray disk decorated with smoothed bands and spiral designs, three knee or shoulder-pieces of bone with fish, and in the workshop of antiquaries, and some of the Han, Tang and Song periods respectively; a plaque fashioned into the figure of a bird, of the Chou period; a decorated ear-plate of the Han period; a flag with cover, of the Sung period, interesting as the precursor in case of the later skull-covers, and a pair of earrings with fine tracings of the Tang dynasty. In addition to the jade collection this gift includes a count-down and an unusual ceremonial silk robe, made for the temple of Ch'ing in Peking in the possession of an emperor, and used for calling the names of the god at the celebration of the birthday. The collection of jade and other objects was acquired through joint subscription from the American Friends of China, Mrs. George T. Smith, Miss Kate S. Buckingham, and Messrs. Martin A. Ryerson, John Jay Abbott, Charles B. Goodspeed, Henry M. Wolf, and Martin C. Schwab, all of Chicago.

Dr. Alfred W. Small of Chicago presented a blackwood portrait of the Chinese god of longevity, decorated with names and "magical" characters used in ritual work.

Two Korean jars of celadon pottery of the thirteenth century were presented by Mrs. Douglas Smith of Hubbard Woods, Illinois, who likewise gave a Japanese vase placed in two colors made by Hizen. These interesting Japanese bronze vases are a gift of Mr. Charles F. Sullivan of Chicago. Two colored wooden sculptures of good quality, representing Buddhist monks and provided with a date that corresponds to A.D. 1766, were given by Mr. Corwith Conant of Lake Forest, Illinois. Dr. I. W. Drummond of New York presented six plates, bound in leather, containing twenty-four photographs of Japanese swordguards and scabbards in his private collection.

Fabric articles of clothing, a mat, bracelets, a belt, and a belt-out holder from various tribes of the Philippines were contributed by Mr. Frank W. Seligman of Washington, D. C. An interesting collection of costumes and utensils from the wild tribes of the island of Formosa was acquired by purchase.

A very few old jars of decorated stoneware were formerly the property of a child exchange. The Walnut Field Company, Chicago,

presented a piece of tapa from Samoa, decorated with geometric designs in the center and a vine painted on the border. An extraordinary drum from the Marquesas Islands was secured through an exchange with the American Museum of Natural History, New York. The drum is carved out of a tree trunk, and is more than seven feet high. Such drums were kept in temples and beaten to summon the tribesmen to a religious gathering at which the principal ceremony frequently was the offering of human sacrifices to the gods. The drummer had to stand on a stone platform about four feet high to reach the drum-head, which is made from the tightly stretched skin of a giant ray. The skin was beaten with the drummer's knuckles. These drums are scarce now; it is believed that not more than four are in existence.

A group of twenty-one valuable objects, chiefly from Polynesia, was received as an exchange with the Department of Ceramics and Ethnography of the British Museum, London. The collection includes some very rare articles made by the ancient Maori of New Zealand; a finely carved model of an old type canoe; a wooden box, decorated with beautiful carved designs, for preserving feathers; a kilt, and three cloaks of so-called New Zealand flax; two old wooden clubs from Fiji; a paddle club from the Marquesas; a spear-shaped club from the Hervey Islands; samples of tapa from Hawaii and Fotuna, and eight stone celts from Ashanti, West Africa.

The Museum's ethnological collections from Australia have been augmented by a welcome gift from Mrs. J. F. Connelly of Perth, West Australia, comprising four emu-feather plumes used by the aborigines for personal ornament; two bone pins worn through the septum of the nose; two bone implements for making fine serrations round the edges of stone spear-heads, and a pointing bone. The last-named is exceptionally interesting because of its use in magical ceremonies. The medicine-man, or any other person wishing to injure an enemy, repairs to the bush, taking with him this long slender bone. The instrument is held in the direction of the enemy's camp, while a curse is uttered.

A pair of so-called kurdaitcha shoes, purchased from Mrs. Connelly, consists of bundles of emu feathers bound with human hair. Yet, in spite of their harmless appearance, they were in time past part of the medicine-man's equipment when tracking a foe. The shoes are the same shape at each end, a fact which may render the medicine-man safe from detection. There would be difficulty in determining direction from such tracks, and the spoor could not



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he said to indicate any particular subject. While wearing these feather articles, the medicine-man sang a spell which translates to "Shame to me with fate."

A great amount of material shipped from Uman, Indi, was received in July as the result of the last summer's excavations of the Field Museum Oxford University Expedition to Kish. The collection comprises numerous pottery vessels, plain or decorated with painted designs, a large series of clay figurines, tablets, clay bull heads, etc., copper and bronze implements, an stone vessel, numerous flint and stone implements, a bone statue, beads and other jewelry, carnelian spheres, a great number of shells, and more than two hundred skeletons. About twenty-four shells from Kish were sent to Professor Herbert Langford of Oxford. The painted pottery vessels which were excavated from the graves at Ughuzlar are now in the process of being examined with the purpose of securing several complete and knowledgeably the names. Gold and bronze objects taken are numerous.

The Captain Marshall Field First and Second Archaeological Excavations in the North Arabian Desert, conducted by Richard Currier Henry Field, brought home more than fifteen thousand stone implements and relics of both prehistoric and medieval times, stone bearing inscriptions, metal weights, and an inscribed document recording the results of a voyage from the British Empire Gulf States.

Mr and Mrs Michael Lammie, of Chicago, who lived for many years at Constantinople, presented the Museum with an outfit of a Turkish lord of the old days, consisting of a waistcoat of heavy silk, a white shirt embroidered with six medallions of floral designs in silver and gold threads, a diaphanous silk nightgown with embroidered along the collar worn during the wedding night, a coat embroidered with Turkish sentences and wrapped by the bride around her waist, a pair of wooden shoes with high heels, and an even more costly outfit to each wife. A further antique costume consisting of three pairs, velvet trousers, green silk vest, and green velvet jacket, is the gift of Dr. Walter Hensley of Damascus, Syria.

Mrs. Elizabeth E. Ayer of Chicago presented a red marble bowl of Armenia in three Roman provincial style, acquired many years ago by her late husband in Florence, Italy.

From his expedition to western Europe, Assistant Curator Field brought back ten thousand specimens that and some implements and other objects excavated mostly in different parts of France. Among the most important objects purchased is a mobile Neolithican fireplace consisting of perforated bands of parchment, ivory, birch bark,

shells, and small pebbles. This was excavated in the cave of La Souquette near Les Eyzies in the Dordogne region of France.

The entire range of the paleolithic periods is very well represented by the collection of flint implements resulting from this expedition, which include a series of fine "laurel-leaf" (Solutrian) blades. Wherever possible, a complete collection of flint and bone implements and casts of animal remains found in one limited locality were purchased, so as to render the collections of greater scientific value and interest. The majority of the rarest prehistoric objects of France are in the Musée National at St. Germain-en-Laye near Paris; casts of most of these were purchased. Further, casts of all the remains of paleolithic man found throughout the world were obtained through Damon and Company in London and Dr. F. Krantz of Bonn, Germany. A set of casts of a frieze of animals found at Le Roc in the Charente by Dr. Henri Martin of Paris was also acquired.

Exchanges made during the year with the Logan Museum, Beloit, Wisconsin, and Mr. Harry G. Beasley of London, England, have resulted in the acquisition of two small but valuable collections from Africa.

The ethnological objects received from the Logan Museum were collected by Professor George L. Collie and his staff in southern Algeria and the Hoggar Mountains, a somewhat inaccessible region in the northern Sahara. This collection of sixty-eight objects relates to the culture of the Tuaregs, a tribe engaged chiefly in breeding camels and carrying on the caravan trade of the Sahara. In this collection the most valuable object is a large shield of oryx hide, ornamented with ancient and intricate designs. Several locks of brass and wood are of a pattern traceable to ancient Egypt. Baskets of the coiled type, richly ornamented leather goods, and a pottery drum are welcome acquisitions. A small group of personal ornaments includes a stone armlet of ancient pattern, valuable alike for its antiquity and excellent workmanship.

From the collections of Mr. Beasley, Field Museum acquired a set of 122 small brass weights from Ashanti on the west coast of Africa. These were used in time past for weighing gold dust in the presence of the king. They are cast by the lost-wax process, and their forms are interesting in relation to the plant and animal life of the country. Other objects of interest in this collection are a well-carved wooden mask from the Yoruba and a peculiar human fetish figure from Gaboon near the mouth of the Congo. From the

some locality are between three centimetral centy. wide and a thickness of about half.

Dr. James Walker of Chicago presented three articles of clothing worn by men of distinction among the Bakongo people of West Africa. The two tops are remarkably worn long very low like, with the hair then removed from strongly hairy. The shoulder-cape is skillfully woven from fine strips of raffia-palm leaf. Mr. Arthur Hooton of Chicago presented a pair of Edo bracelets which are a good example of the joining of fine silver and copper wire made in that place.

An exchange with the Ethiopian Museum, Bulawayo, Africa, resulted in the acquisition of two large and one small stone implements of the early prehistoric period from Rhodesia. This is an interesting group representing the Chindal and Atherstone types of South Africa.

An exchange with the South African Museum of Cape Town yielded a collection of archaeological material which rounds out the Museum's South African prehistoric collection. These implements, suggestive of the Neolithic period of Europe and the Tardenois of North Africa, as well as an ornament from the same period, the second largest one found from South Africa, but nothing of special mention. A number of ethnological objects from various tribes such as the Kaffirs and Kaffirs are included in this collection. They are of good use and are valuable in the collection. Many of them represent types or types characteristic in their country of origin.

By purchase from Dr. Neville Jones, Bulawayo, Rhodesia, who is the foremost living authority on the stone age of South Africa, there was obtained a collection comprising more than a hundred objects illustrating all the important types of stone implements found in South Africa, presently identified as the Neolithic and Copper. It is the most complete collection of the very best that has been brought to the United States, and hence an important addition to the Museum's collection.

An exchange with the Rhodesian Museum, Bulawayo, had secured a good and valuable collection of Rhodesian ethnological and archaeological material. Many of these objects are of types too large to describe. In view of the fact that the Museum has previously had no Rhodesian material, this is a welcome addition.

With funds of the Canadian Marshall Fund Expedition to Zululand some Rhodesian ethnological material was acquired, mostly

from the Barotse tribe. It includes baskets, wood-carvings, weapons, pottery, musical instruments, and a good series of fur cloaks made from the skins of various animals, previously lacking in the Museum. Five of these robes have been placed on exhibition. Seven Zulu tobacco-pipes of types not previously in the Museum were given by Dr. Ralph Linton.

In addition to the material accessioned last year, about 1,500 objects from the Bara, Tanala, Betsileo, and Imerina tribes of Madagascar were received this year from the Captain Marshall Field Expedition to Madagascar in charge of Dr. Linton. Especially noteworthy are fine wood carvings and brass castings from the Bara and an unusually complete Tanala collection illustrating practically all known types of artifacts produced by this tribe. Three large iron lamps, one of these the property of the last Betsileo king; a ceremonial axe, emblem of royalty among the Betsileo; two royal robes of silk heavily beaded, the only ones which have ever left the island; about fifty other robes of wild silk and cotton, and four magnificent carved panels are the outstanding features of the Betsileo collection. The Imerina material consists of a number of fine blankets of domestic silk and a huge blanket of wild silk woven by an Imerina princess to be used as her shroud, one of the best examples of Imerina weaving extant. Most of this Imerina material has been placed on exhibition.

**BOTANY.**—The number of specimens received by the Department of Botany in 1928 was 21,864, an increase of 6,946 over the specimens reported for 1927. The number of accessions was 241. Of the specimens mentioned, 1,930 were additions to the economic collections, consisting in large part of wood samples. The remainder, amounting to 19,934 specimens, were herbarium specimens.

Of the herbarium specimens, 2,900 were presented by friends of the Museum; 11,155 were received in exchange from various institutions and individuals; 3,900 were purchased, and nearly 2,000 were acquired as the result of Museum expeditions.

Professor Samuel J. Record, Research Associate in Wood Technology for the Museum, and professor at the Yale School of Forestry, has continued to contribute herbarium material of tropical American timber trees, and during 1928 forwarded 371 specimens, chiefly from Central America. Particularly worthy of mention among these was a collection made on the east coast of Nicaragua by Mr. F. C. Englesing, of the Bragmans Bluff Lumber Company, which has

group of small, round, brown or coppery, sometimes nearly black, tubercles in rows. Mr. Engelm's collection was again in a part of Illinois in which no growing had been done before. The late Karst collected several collections from Illinois and Iowa when, like the other men, he collected the wealth of vegetation in that country. In every collection occurred at least one or two unknown plants.

The Illinois's Illinois Herbarium was increased by several notable additions. Dr. H. C. Smith, of Chicago after a season of slight collecting in the state, presented 121 specimens which will help to fill the gaps in that collection, and to supply several other notes regarding the distribution of the rare members of the Illinois flora. Mr. Milton Briggs of Olney, Illinois, presented 122 specimens from Eastern Illinois. Olney, being where are represented many of the less common members of the state flora. Study of his collection revealed a new hybrid *Galium* and *Juniper* and a new form of the common yellow *penstemon* (*Penstemon*).

Mr. L. E. Young, of the Illinois Natural History Survey, Urbana, Illinois, presented 116 specimens, mostly of woody plants. From Dr. Martin Armstrong of South Bend, Indiana, there were received 286 specimens collected in Illinois and Michigan, and from Mrs. M. S. Lathrop of Evanston, Illinois, most plants gathered in Illinois.

Mrs. Mary Brown of Crown Point, Indiana, presented quantities of several new species of the DuRoi region of Iowa and Illinois. Indiana, Indiana, among them a new variety of *Juniper* and a new form of the red cedar (*Juniperus virginiana*). As a gift from Dr. C. E. Hallway of the Department of Zoology, two specimens of new *Urtica* were received. Mrs. Julia E. Fayet of Oak Park, Illinois, contributed material of several unusual plants of the Chicago region, among them some of the forms of the blue lupine and *Chamaecrista*, collected from the city.

The Museum was benefited by receiving at least a large number of plants from Mexico, and Central and South America, the regions from which have just material is most desired. Most of these collections were sent for the purpose of obtaining determinations of the plants. From Dr. L. A. Purpus of Tampico, Mexico, there were received several new plants from the State of Veracruz, Mexico, and from Dr. H. C. Baker of Iloilo, Iloilo, Mexico, very few specimens from the State of Durango, a part of Mexico.

which is almost unknown botanically. Mr. Charles F. Henderson of Berkeley, California, presented an interesting series of fifty-seven plants, mostly from Mexico. These were collected as the host-plants of insects under study by the donor, and include several rare members of the pigweed family.

As a contribution to the little-known flora of British Honduras it was particularly gratifying to receive from Dr. J. S. Karling of Honey Camp, Orange Walk, British Honduras, seventy-six specimens collected in the northern part of the colony. Mr. C. R. Lundell, of the Institute for Plant Research in Tropical America, Washington, D. C., forwarded 144 specimens from the same country, among them numerous latex-yielding plants. Dr. Salvador Calderón, of the Laboratories of the Department of Agriculture of Salvador, presented 110 specimens of Salvadorean plants, several of which were additions to the flora of that republic as published a few years ago by Dr. Calderón and Associate Curator Standley.

Professor L. A. Kenoyer of Kalamazoo, Michigan, sent to the Museum thirty-five specimens and photographs of plants of Barro Colorado Island, Canal Zone, for use in the preparation of a second list of the plants of this island by Professor Kenoyer and Associate Curator Standley, which is being published by Field Museum. Eight specimens of rare plants were received from Mr. James Zetek of Ancon, Canal Zone. The Department of Agriculture of Guatemala presented twenty-eight specimens of plants from the high mountains of that country. Mr. C. H. Lankester sent from Costa Rica eleven specimens of mosses, which have been determined through the courtesy of Mr. Edwin B. Bartram of Bushkill, Pennsylvania.

From Peru were received collections which will be useful for the flora of that country now being written by Assistant Curator J. Francis Macbride. Professor Fortunato L. Herrera, of Cuzco, Peru, well-known student of the Peruvian flora, presented 126 specimens from the wet tropical mountains, for use in the preparation of this work, and Mr. Oscar Haught of Negritos, Peru, gave forty-four interesting plants from the arid region of that locality. Both of these collections are particularly welcome because they come from localities not represented otherwise in the Museum's Peruvian herbarium.

Dr. Earl E. Sherff, of Chicago, as in previous years, has donated to the Herbarium valuable material, and in the past year contributed eighty-five sheets, mostly species of *Bidens*, a group of Com-

portion of which he is preparing a monographic account. Professor A. G. Cottrell of Salt Lake City, Utah, presented a desirable series of 141 specimens illustrating the flora of Utah. From the recently established Wertz Memorial Museum, of San Antonio, Texas, through the courtesy of Mrs. Ellen Schell Quinn, a comprehensive collection of the Texas plants, including material of two new species was received.

Various specimens of sedges, representing critical species in the difficult genus, were received as a gift from Dr. F. E. Hall, of Washington, D. C., the leading American authority upon this genus, and twelve specimens of Ohio plants were presented by the Cleveland Museum of Natural History, through the courtesy of Mr. George F. Simmons. From the veteran collector of the southern States, Professor Albert Roth, of Fort Worth, Texas, there were received thirty-four Texas plants.

In December Mrs. Clarence Patterson of Chicago, Illinois, arranged for the deposit in the Department of Botany of Field Museum, of the botanical correspondence of her late Henry E. Patterson. The generous gift will supplement admirably the Patterson Herbarium which was acquired by the Museum some years ago. Mr. Patterson had a wide acquaintance among American botanists, and the correspondence and other papers doubtless contain a large amount of historical material. This collection is now in Carriage College, Carriage House, Illinois, where, in compliance with the donor's wishes, it may be consulted two years for study purposes.

Several large lots of plants were received in exchange during 1924. The most important accession of the year consisted of 8,800 specimens, many of them mounted, transmitted by the National Herbarium of the United States National Museum, through the courtesy of Dr. William E. Miller. The material consisted chiefly of tropical American plants, and added to the Herbarium a large number of species which have not been mounted before. The accession in this connection consisted of 4,130 plants from Herbarium, which constitutes a particularly complete set of his collection made in that season in the winter of 1917-18 by Assistant Clement Standley. The Herbarium collection is now being stored in Field Museum, and will serve as the basis of a flora of the Lowland Valley, publication of which may be expected in the near future. The series appears to be rich in new plants and already twenty-five new species of *Stigm.* and *Phorad.* have been indicated to it by Dr. William Trelease of Chicago, Illinois.

From the Royal Botanic Gardens, Kew, England, there was received in exchange an exceptionally valuable set of Colombian plants—647 specimens—collected many years ago by F. C. Lehmann. This collection, along with other recent ones, has added to the Herbarium many South American species not represented previously.

The California Academy of Sciences, through Miss Alice Eastwood, forwarded as an exchange a desirable lot of 415 specimens, mostly from Lower California. The Gray Herbarium, of Harvard University, through Dr. B. L. Robinson, Director, with customary generosity, transmitted 659 plants, nearly all from Europe. Brother Marie-Victorin, of Montreal, in continuation of former sendings, forwarded eighty-six specimens collected by himself in the still little-known districts of eastern Canada.

From the Universitetets Botaniske Museum of Copenhagen, through Dr. Carl Christensen, there was received a particularly valuable series of 276 specimens, consisting of plants collected in Venezuela by Eggers and Warming, and of the classic collections obtained nearly one hundred years ago in Mexico and Central America by Liebmann and Oersted, among them a quantity of invaluable type material. From the Hungarian National Museum were received in exchange one hundred specimens, beautifully prepared and informatively labeled, of the *exsiccateae* issued by that institution to illustrate the flora of Hungary. The Botanic Station of Brignoles, France, sent ten specimens and packets of seeds. The latter have been transmitted by Field Museum to the Morton Arboretum, Lisle, Illinois, for propagation.

The Museum has been able to secure by purchase several important and extremely useful plant collections from tropical America, and these, together with others obtained by gift and exchange, have made a very large contribution to the representation of tropical American flora in the Herbarium.

Among the more important purchases were 298 plants collected in Argentina by Mr. S. Venturi, of Tucuman, Argentina, among which are many species new to the Herbarium. One of the most successful collectors of South America, Dr. Otto Buchtien, of La Paz, Bolivia, collected 300 specimens in Bolivia which have added appreciably to the Museum's extensive representation of the Bolivian flora. Another Bolivian collection purchased consisted of 300 plants collected in the Province of Santa Cruz by Mr. Jose Steinbach of Buenavista, Bolivia. Coming from a province previously unexplored,



*Albizia leonensis* (L.) Merr.  
Common name: Albizia  
Family: Mimosaceae

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This collection is proving to be especially rich in palaeotherid plants, as well as in genera not recorded elsewhere from British.

A useful collection, received during the past season of 141 plants collected by Dr. Gulliver Foster of Montreal in Uruguay, a country almost without representation in North American herbaria. Through the courtesy of Dr. H. B. Oliver of the New York Botanical Garden, there were obtained eighty-five plants collected in British Columbia by Mr. A. G. de la Cruz, Georgetown, British Columbia, in continuation of a large series received from the same collector in former years. From Mr. W. E. Brewster of Port of Spain, there were received 226 plants from the shores of Trinidad and Tobago.

Of increasing value among the accessories was a collection of 226 specimens of Mexican plants, received from Mrs. Yuse Meier of San Francisco. These were obtained in the Sierra Madre in the states of Jalisco and Nayarit, mostly in localities not visited by any earlier collector. The collection was saved chiefly by American Charles Wadley, and was found to contain numerous new species as well as several of many plants which are extremely rare in British.

There were purchased 221 plants collected in Baffin by Mr. Walter J. Fyfe-Smith, of Seattle, Washington. Very few plants from this portion of the island of Baffin have hitherto found their way into American herbaria, and the collection adds to the certain richness of the Herbarium's collection of the West Indian flora, acquired in large part by the field work of the late Dr. C. F. Millspaugh.

The United States section of the Herbarium was improved by the addition of 265 plants gathered in Texas by Professor Albert Link, of Fort Worth, Texas; by 220 selected specimens of Oregon plants purchased from Mr. J. W. Thompson, of Seattle, Washington; and by 196 California specimens obtained from Mr. A. J. Heller, of Chico, California. From Mr. Frank Cline, of Washington, D. C., were received 226 plants collected in the course of his work in Texas Park, United States.

From Thomas Carl Ewing, of Los Angeles, there were purchased one hundred photographs of type specimens existing in European herbaria. Photographs like these are of the greatest value for study purposes, and usually they are made as satisfactory as the original specimens for comparison in the determination of certain genera.

Mr. G. Proctor Cooper, of the Captain Marshall Field Expedition to Panama, 1928, collected about 1,100 specimens of Panama plants, which are described more fully in preceding pages. Besides the set of these plants deposited in the Museum Herbarium there remains a quantity of duplicates for distribution to other institutions.

During the past year Mr. C. S. Sewall and Assistant Curator A. C. Weed, of the Rawson-MacMillan Subarctic Expedition of Field Museum, obtained 678 specimens of plants, mostly from Labrador. This collection, supplemented by an equally large number obtained in 1926 and 1927, gives to the Herbarium a substantial representation from this region.

It is gratifying to note the interest evinced by the lumber and wood-working industries, as well as by various individuals and other institutions, in the wood collections of the Museum, as evidenced by the substantial donations of valuable specimens during the year.

The Yale University School of Forestry donated a collection consisting of 1,600 authentically identified hand-specimens of tropical woods which augments the reference collection considerably. The Museum reciprocated by sending exchange shipments for study and other purposes.

The Government Forest Service of Burma, India, forwarded a shipment composed of 178 identified wood samples of that country.

The Jacob Bayer Lumber Company of New York City donated a board of black cherry.

Samples of the well-known koa wood, in addition to the wooden parts of a ukelele and a finished instrument, were presented by the Hawaiian Mahogany Company of Hawaii.

Twenty-nine boards and planks of important commercial woods from various tropical countries were presented by the C. H. Pearson and Son Hardwood Company, New York City, to be placed on exhibition.

A collection composed of 260 hand-specimens of tropical woods was secured from the Panama region by Mr. G. Proctor Cooper, who undertook the exploration of certain districts of that area in cooperation with the Museum. In addition, a log of the rare and highly-colored "bloodwood cacique" was obtained for exhibition purposes.

A board of Honduras rosewood was received from J. C. Deagan, Incorporated, Chicago, manufacturers of chimes and xylophones.

The United Fruit Company of Boston donated a board of similar wood.

A pair of *Parquet* (mahogany), followed by Mr. George Hurst, president of the Agave (Maguey) and Tobacco Company of Mexico, and borrowed by the Fore School at Pasadena, furnished the Museum with the first authentic specimen of the true mahogany of the upper Mexican region.

Mr. W. E. Hackett of Highland Park, Illinois, an Associate Member of the Museum, again demonstrated his interest in the study of woods by augmenting the reference collection with several samples of foreign woods.

Through Professor Record a very interesting exhibit of the wood and latex of the remarkable *Guatemalensis* oak-tree, was received. The particular tree, *Quercus guatemalensis* Standley, is located in its native home in the Puerto Barrios District of Guatemala. On making incisions in the bark a creamy white sap, resembling milk in appearance, exudes, and when allowed to dry it becomes sticky. The natives, who are familiar with this latex, use it occasionally like cream in coffee, or combine it with sugar to make a sweetmeat.

Cases of white pine were presented by the Botany Department of Yale University and Mr. Huron H. Smith of the Milwaukee Public Museum.

The bark of a *Leguminosae* tree, "*Passeris serena*," extensively used for medicinal purposes in South America, was presented to Mr. G. A. Purcell of Toledo, Ohio and Company, Detroit.

A yellow latex made of spruce-needle from Panama was received from Mr. Thomas G. Rotherford, Chicago.

The Archer Company, of Philadelphia, North Carolina, donated wood specimens of *Yucca yucca* and *Yucca juncus*.

Through the courtesy of Mr. D. H. Russell, the Lumber Detective Company, of Chicago, contributed several hard-specimens of woods from China and Japan.

Specimens of Orange orange wood were secured for the Museum by Messrs. M. H. Clynes and N. E. Becker of Chicago, and presented by them.

One of the most interesting wood specimens added to the collection during the year was the *populus* (poplar) tree donated by Professor Samuel J. Russell. The tree sprouts were cut out of a log several after repeated attempts by Mr. Robert T. Hall of New York City.

The tree producing this beautiful pinkish wood is *Rhamnus Zeyheri* Sond., of the Buckthorn family (Rhamnaceae), and grows in scrub forests or hot thorn-veld valleys in Zululand and neighboring regions. Ordinarily, it does not exceed twenty feet in height, and has a slender trunk that rarely attains one foot in diameter. The Kaffir name for the wood is "umini," while the Zulus refer to it as "umgoloti."

Because of its scarcity and color, the wood has been highly prized by the Zulus, and under the old tribal custom, still prevailing in the interior districts, the trees were not allowed to be cut. As a symbol of regal authority only the head of the royal house was entitled to carry a stick of "umgoloti," and infringement of this peculiar privilege was punishable by death. History recites that the Zulu king, Dingaan, who was vanquished by the Boers, invariably carried a spear of pink ivory. After his defeat he was put to death with this weapon, at his own request, by his henchmen.

Through the courtesy of Mr. O. F. Phillips of the Bureau of Agricultural Economics, United States Department of Agriculture, a tray of standard barley grains for the United States was supplied for the grain exhibit in Hall 25. The tray includes four samples of two-rowed barley—Hannah, Haunchen, Swanhalz and Chevalier; and eleven samples of six-rowed barley—Manchuria, Oderbrucker, Tennessee winter, Horsford and Gataui which are eastern grown, and Coast, Utah winter, Mariout, Trebi, Nepal and Black hull-less, all of which are grown in the west. It also contains a display of the defects of barley which are of importance as grading factors, such as damaged grains, heat-damaged grains, skinned grains, smut, soil, brome grass, other foreign material and dockage.

Some additions were made to the exhibits of edible oils, edible nuts and dried fruits in Hall 25 by purchase in the local market of fresh specimens of melon seed, a source of edible oil in some parts of the world, and of pistachio and cashew nuts and of litchi fruits.

Tubers of the elephant ear were presented by Vaughan's Seed Store of Chicago for use in the exhibit of starchy tubers and starches, and some of the starchy tubers commonly grown in the West Indies, such as yams, tannias and eddois, were supplied by Acting Curator B. E. Dahlgren.

The New York Cocoa Exchange donated samples of the following eight varieties of cacao beans, including the most important commercial beans: Accra from British West Africa; Sanchez from

the International Republic; Grains from British West Indies, Surinam, from Dutch Guiana, and varieties from Panama, Venezuela, Trinidad, and India, Brazil.

Twenty-one several specimens of tea were presented by the Museum by the Chinese Cons. at Great Northern Wharf, Imported. These samples illustrate the principal teas of commerce namely, Japanese, Chinese and Chinese. The Japanese are represented by whole, medium and common grades of balled and broken pieces, balled and broken pieces of gun-fired leaves and the large-scale of tea-propagation by whole, single and double. Formosa Oolong tea is represented by three grades, as well as by a sample of whole, medium and common grades of whole tea. Of the green teas of China there are five popular varieties known as greenish, imperial, and orange, each of which is represented by three grades. The black or fermented teas, largely the product of China, India and Java as well as of China, are represented by the following grades noted in descending order, flowery orange yellow, orange yellow, yellow, yellow sweetening, broken orange yellow and broken yellow.

Among other economic plant material recently obtained, we have much paper products derived from paper - various there used in paper, clothing and rope manufacture. These were received as gifts from the manufacturers of such products. Crane and Company of Boston, Massachusetts, presented five specimens of paper material, from rope, was first that for paper manufacture, half-stick not yet put into the basket, and an unfinished and finished sheet of balled rope paper. From S. B. Warren and Company of Boston, Massachusetts, they were received eight specimens illustrating the manufacture of green paper, the residue of wet balled rope paper. The green residue of green rope for paper-making, unfinished rope paper, finished rope paper, with ready for the paper machine, resin rope, rope and rope.

The American Writing Paper Company of Milwaukee, Massachusetts, presented material for an exhibit of various paper. The assignment, composed of eight specimens, included the following: a bag of new rope, a bag of old rope, a lot of new rag balled rope, a lot of broken rope, a lot of machine work, white prepared and white ground coarse hand paper and various photographs illustrating the various processes in the manufacture of paper. The Pillsbury and Van Curnsey of Boston with various quantities of rope and rope, together with paper in various stages of preparation from

from them, as follows: rope as received at the paper mill, rope cut and dusted, rope cooked, rope half-stock unbleached, rope half-stock bleached, jute bagging as received at the paper mill, jute cut and dusted, jute cooked, jute half-stock bleached, cables insulated with rope paper, insulating paper used for winding on wire, and samples of rag and jute papers.

At times the Department of Botany is asked to analyze samples of paper textiles. This has been done during the past year for the Department of Anthropology and the Division of Printing of the Museum. It is of great value on such occasions to have for comparison not only authentic fiber specimens and paper made from various kinds of authentic materials, but also slides and photo-micrographs of the various fibers of commerce. Nine photo-micrographs were received through the courtesy of the United States Bureau of Standards of Washington as follows: wood fiber of Douglas spruce (*Pseudotsuga taxifolia*), linen fiber (*Linum usitatissimum*), cotton fiber (*Gossypium* sp.), jute fiber (*Corchorus capsularis*), hemp fiber (*Cannabis sativa*), sweet gum fiber (*Liquidambar styraciflua*), paper mulberry fiber (*Broussonetia papyrifera*), aspen wood fiber (*Populus tremuloides*), and rice straw fiber (*Oryza sativa*). Thirty microscope slides of commercial fibers, mounted by Mr. Edwin Sutermeister of Westbrook, Maine, were acquired by purchase, namely: pineapple (*Ananas sativa*), oat straw (*Avena sativa*), bamboo stalks (*Bambusa arundinacea*), pita (*Agave* sp.), ramie (*Boehmeria nivea*), New Zealand flax (*Phormium tenax*), bowstring hemp (*Sansevieria guineensis*), hemp grown in Russia (*Cannabis sativa*), hemp grown in the United States (*Cannabis sativa*), corn stalk complete (*Zea Mays*), sugar cane bagasse (*Saccharum officinarum*), linen (*Linum usitatissimum*), raffia (*Raphia ruffa*), two slides of silver leaf poplar (*Populus alba*), sisal (*Agave sisalana*), jute (*Corchorus capsularis*), manila hemp (*Musa textilis*), paper mulberry (*Broussonetia papyrifera*), esparto grass (*Stipa tenacissima*), rice straw (*Oryza sativa*), cotton fiber mercerized without tension (*Gossypium* sp.), cotton fiber (*Gossypium* sp.), banana fiber from stalk (*Musa sapientum*), aspen wood fiber (*Populus tremuloides*), red oak wood fiber (*Quercus*, sp.), basswood fiber (*Tilia americana*), Douglas spruce wood fiber (*Pseudotsuga taxifolia*), and lodgepole pinewood fiber (*Pinus Murrayana*).

Dr. Salvador Calderón of San Salvador sent to the Museum a sample of the fiber of the palma de sombrero (*Inodes* sp.) of his



late husband, numbers 3,240 specimens, representing more than four hundred mineral species and varieties, or most of the important species in the entire range of minerals. Mr. Higginson's interest in minerals was aroused in early life through his studies under the elder Agassiz, and collecting was continued by him and Mrs. Higginson during the remainder of his life. Having been gathered during a long period, the collection contains many specimens from localities now exhausted. Minerals from these older localities were sometimes given names differing from those now in use, and the specimens from these localities now serve as paratypes of these varieties. All the specimens, when received, were carefully labeled as to species and localities. While many of the specimens are not of large size, there are plenty suitable to make a good display for exhibition. Suites of especial importance are those of tourmalines from Pierrepont, New York, pyroxenes from St. Lawrence County, New York; the series of micas and hydromicas, beryls and many other silicates from New England localities now exhausted, and specimens of gold from twenty localities, chiefly in California.

Mr. William J. Chalmers generously continued his interest in the collection of crystallized minerals, and presented to it forty-three choice specimens. These included excellent specimens of South African diopside and cerussite, rare crystals of pyrrhotite and realgar from Roumania, and many specimens from European localities which had been held in early collections and had just become available. Mr. Chalmers also contributed a brilliant specimen of precious opal to the gem collection, and an interesting series of photographs, made many years ago, illustrating mining and other activities in Japan.

Mr. Richard T. Crane, Jr., made some notable contributions to the gem collections in Harlow N. Higinbotham Hall. Foremost among these is a carving of rose quartz in the form of a large bowl, eighteen inches in diameter and six inches in height, wrought from a single piece of the mineral of gem quality. The walls of the bowl are cut to such thinness (less than one-half of an inch) that they display to a marked degree the rare tints and opalescence of the mineral. Three emeralds, having a total weight of twenty-six carats, cut from gems obtained at Bom Jesus dos Meiras, Bahia, Brazil, were also included in Mr. Crane's contribution. These give an excellent representation of the cut emeralds of this locality, from which four large crystals had been collected by the Curator in 1923. A dish of vesuvianite of the variety known as California jade, carved by an



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American lapidist, an unusual specimen of agate, and a polished slab of green aventurin from India, are other additions contributed by Mr. Cross.

Mr. John Smith, head of the Florida Field Museum, Santa-Archie Expedition, presented two superb teeth and a lower jaw of the *Alouatta palliata* which he procured while on this expedition. The teeth are remarkable by their long roots and particular of form, one especially having a beautifully polished surface and pumice tip. This tooth, which has a length of ten lines, is quite remarkable for showing a double curve, an unusual feature in such bones, and for the strong root of the tip, which contrasts with the polished base of the remainder.

A type of a fossil shark found at Sarasota, Florida, was presented by Mrs. Stanley Field, is of interest in demonstrating the existence of this animal in the southern United States at an earlier time.

The Illinois State Museum contributed, through the courtesy of Dr. A. E. Cross, Chief, a three pound specimen hitherto with credit of the only meteorite ever known to have fallen in the state of Illinois. This specimen was part of the forty-six pound individual which fell at Tillam, Randolph County, Illinois, July 11, 1921. The specimen showed some of the important features of the meteorite, but it is of sufficient size to permit enough for laboratory and analytical studies to be removed without any essential loss. The same museum presented also a part of the fourteen pound individual which adds to the completeness of the representation of this fall.

Dr. Ralph Harris of Madison, Wisconsin, presented a nicely colored red stone or water necklace from Malagasy, weighing five ounces, and a red denture from California of two and one-half ounce weight. These dentures were most representative specimens of those gems that had previously been in the Museum collection.

A slab of polished fibrous green from the Haverhill District of Vandenberg, Massachusetts, was a desired addition to the gem collection, the coloring of the stone being unusually brilliant.

Dr. William F. Fothergill of Chicago, presented 100 specimens of minerals and eight specimens of bones from various localities, and five geological photographs. The minerals included diamonds by the gross, diamond-bearing gneiss, little by the gross, and a small red stone, very rare colored phosphates and other rare minerals, and a number of specimens of hard and resin. The collection had previously been loaned to the Museum but has now been returned as a gift.

Eleven specimens of potash salts from Texas and New Mexico, which were presented by the United States Geological Survey through Director George O. Smith, are of importance as indicating possible resources of potash of unusual value in the United States.

A number of valuable specimens of minerals and fossils were received by exchange. From the Eastern Washington Public Museum at Spokane, Washington, through Mr. C. O. Fernquist of that museum, there were received, by exchange, twenty-five specimens of the interesting hyalite, opal, sphaerosiderite, *et cetera*, that are obtained from cavities in the volcanic rocks about Spokane, and are peculiar to that region. The fossils comprise chiefly well-preserved leaves and other plant remains of the Miocene age, which also occur in the Spokane region. Both the fossils and the minerals when received, had all been carefully identified, prepared and labeled.

From Professor H. H. Nininger there was received, by exchange, a full-sized section, weighing seventy grams, of the Ballinger, Texas, iron meteorite, and a full-sized section, weighing 886 grams, of the Mount Tabby, Duchesne County, Utah, iron meteorite. The latter is remarkable for the unusual beauty of its etching figures and for its content of nodules of an anomalous iron sulphide.

Exchange with the Paterson Museum of Paterson, New Jersey, through Mr. James F. Morton, Curator of that museum, added to the collection in Field Museum fourteen specimens of the minerals which occur in the trap rocks about Paterson. Several of these specimens are of large size and showy aspect.

A fairly complete skeleton of *Oreodon* from Nebraska, and a good skull and jaws of *Poebrotherium* from Wyoming, were obtained by exchange with the University of Chicago. They give the Museum a more complete representation of these fossil mammals than had been possessed before.

An important addition by purchase was an exceedingly well-prepared slab from the fossil beds at Holzmaden, Württemberg, showing a complete skeleton of the crocodile-like animal, *Steneosaurus*. This slab is two by eight feet in size, and shows practically all parts of the skeleton, preserved in a natural manner. The animal was a crocodile-like reptile characterized by a long, slender head with numerous teeth, and having numerous, bony, deeply pitted plates covering part of the body.

Two iron meteorites were added to the meteorite collection by purchase. The largest of these came from Gladstone, Queensland,

Australia. This is a nearly complete individual, weighing 1,400 grams. It is two feet nine inches long, one foot nine inches wide, and nine inches in height. The plumage is remarkably not only for its large size, but because of its internal features, contrasting as it does, neither of an unusual composition. The other two proteropids purchased is a third male near Houli, Arizona. This individual is a well-preserved set piece, weighing 1310 gm. So far as known, this is the only individual of the fall.

**Statistics.**—Immigrants for the year reached a total of 3,773. This is the smallest number for several years. Less than one half of the total consists of insects and marine invertebrates, which is unusual. The causes for this point were largely accidental. Bats, birds, bee parasites were scarce, and although several large shipments are not during 1938, some are important are retained. The arrivals are divided as follows: mammals, 171; birds and eggs, 362; reptiles and amphibians, 418; fishes, 1,290; insects, 1,290; lower invertebrates, 3,410. The number obtained by Museum agents, 1,845, is 49.4%, by gift 1,084, by purchase 185, and by purchase 144.

Gifts of mammals include 125 specimens of small rodents from Argentina presented by Mr. Othello Thomas of the British Museum. An important single specimen is the skull of an *Adelphi* species named from Dr. F. P. Thompson of Chicago. This is an unusual specimen in the fact that it illustrates his own condition in which the teeth fail to develop. Two other skulls and two pairs of molar teeth were named from Mr. John Barber. President Stanley Field made a valuable addition to the collection of animal bones by Carl E. Kiley by acquiring the one entitled "M. No. 1."

Among birds presented, the most important is a specimen of *Phylloscopus pusillus*, a new South American species named from Mr. A. G. W. Sargent of Puerto Barrios, Paraguay. Two other birds from South America, new to collectors, were received in exchange from the United States National Museum. These are a *Myadestes*, *Myadestes flavus*, from Argentina, and a *Myadestes*, *Myadestes albidus*, from Chile.

The donations of reptiles amounted to 175 specimens from various sources. Especially noteworthy was a collection of three lizards and six snakes from Valparaiso presented by the California Institute of Technology through Mr. Donald E. Inley. Other gifts of reptiles and amphibians included four California snakes from Colonel M. L. Crocker of Fort San Antonio, Texas; and

Oklahoma frogs from Miss E. R. Force, of Tulsa, Oklahoma; seventeen German reptiles from Mr. C. F. Gronemann, of Elgin, Illinois, and 176 specimens from Wisconsin collected and presented by Mr. F. J. W. Schmidt, of Stanley, Wisconsin.

No extensive gifts of fishes were received, but two especially fine specimens of North American species were presented. These were a large lake trout from Mr. E. C. Vacin of Chicago, and a specimen of the inconnu, *Stenodus mackenzii*, from the Booth Fisheries Company of Chicago.

The number of insects accessioned was 2,853 of which 2,173 were presented by Associate Curator W. J. Gerhard, being specimens collected over a number of years during vacation periods in Illinois and Indiana. Certain large and desirable insects to the number of fifty-four were received as a gift from Señor E. Jacy Monteiro, Rio de Janeiro, Brazil. Local insects donated include ninety-eight specimens from Mr. Bryan Patterson, Chicago, and fifty-two from Mr. A. B. Wolcott of Downer's Grove, Illinois.

The most extensive zoological accessions of the year were those received from the Rawson-MacMillan Subarctic Expedition of Field Museum, which added 4,433 specimens to the collections. Of these, 2,711 are insects and other invertebrates, while 1,500 are fishes with which are important and valuable colored sketches made from fresh or living material. Mammals to the number of 118 were obtained, and eighty-eight birds and eggs, collections in these groups being relatively small, owing to very unfavorable conditions.

## DEPARTMENTAL CATALOGUING, INVENTORYING AND LABELING

ANTHROPOLOGY.—The number of accessions in the Department of Anthropology during the year was fifty-one of which thirty-two have been entered. Eight accessions from previous years were also entered.

The work of cataloguing has been continued as usual during the current year, the number of catalogue cards prepared totaling 5,825. The total number of catalogue cards entered from the opening of the first volume is 181,159.

The 5,825 cards written during 1928 for accessions received during the year or in previous years are distributed geographically as follows: North American archaeology and ethnology, 93; Mexican, Central and South American archaeology and ethnology, 641;

archaeology and ethnology of China, Japan and Korea, 225; ethnology of Polynesia, 11; Polynesian ethnology, 22; Malayan ethnology, 1; Australian ethnology, 11; African ethnology, 416; Madagascar ethnology, 2,779; Egyptian ethnology, 60; ethnology of Turkey, 6. Of these cards, 2,779 have been entered in the accession books, which now contain half-size volumes. Also seventy-seven cards prepared for accessions received previous to 1928 were entered, making a total of 3,852 cards entered.

A total of 8,046 labels for use in exhibition cases were prepared and placed during the year. These labels are distributed as follows: archaeology of Egypt, 570; ethnology of Africa, 1,714; ethnology of Madagascar, 2,178; ethnology of Malaya, 3,026; archaeology of Mexico and Mayas, 71; ethnology of South America, 160; ethnology of the Siakas, 165; archaeology of China and Tibet, 148; ethnology of Malaya, 8.

To the Department's album 1,657 photographs were added.

**HERBARIUM.**—During the year entries made in the catalogue of the Herbarium amounted to 9,028, bringing the total mounted sheets to 580,357.

Labels were written for about 14,000 specimens of *Humulus* plants, for several thousand current accessions, and for duplicates now ready for distribution.

All the wood samples in the reference collection, numbering close to 7,000 specimens, are now labeled and arranged in a systematic order, as outlined in last year's Report. This enables any particular specimen to be located with ease.

For the classified index of the specimens in the economic collections several thousand new cards were written and filed. A large part of the material in the economic reference and storage collections, hitherto identified only by numbers referring to accession catalogue entries, has been supplied with accession labels and has been card indexed during the year. This work was started years ago and has been carried on almost continuously since February, 1925, by Assistant Curator James D. McVick and Mr. Lincolyn Williams, Assistant in Wood Technology. The organization of the economic collections is now practically completed, and the result is an orderly arrangement of the storage material, with a finding index to material which cannot be filed in the Herbarium.

Descriptive labels were written for all new installations in the exhibition hall. Diagrams showing chemical composition, and

maps showing distribution were prepared for various economic exhibits.

The filing, as a card index, of the labels in the exhibition halls has been continued.

Several thousand index cards to agricultural literature have been received from the Institut Colonial de Marseille. These have been classified and filed.

GEOLOGY.—The total number of specimens catalogued during the year was 4,575, making a total of 184,472 now recorded. Of the additions, the largest number were from the mineral collection presented by Mrs. Charles M. Higginson, which amounted to 3,240 specimens. Other additions of some magnitude were 384 specimens of fossil vertebrates and invertebrates from the collections of the Captain Marshall Field Paleontological Expeditions to South America; 241 specimens of Illinois fossil plants, invertebrates *et cetera*, presented by Mr. Bryan Patterson; 215 specimens of crystallized minerals and photographs presented by Mr. W. J. Chalmers; 118 specimens and photographs presented by Dr. O. C. Farrington, and 72 specimens of minerals and fossils received by exchange from the Eastern Washington Public Museum.

Some special exhibits and series were provided with labels of the latest type during the year. These included the exhibit of Baffin Land and Newfoundland fossils and minerals in Stanley Field Hall, and in Ernest R. Graham Hall seven of the Knight murals; a case of mounted tablets of invertebrate fossils, and a case each of fossil sponges, Jurassic invertebrates, Jurassic ammonites, fossil crinoids and models of dinosaurs, Miocene horses and rhinoceroses, and Minooka (Illinois) Mastodons. Typewritten labels have been provided in Graham Hall for a case each of South American fossils, Mongolian fossils and fossil fishes. In Hall 36 the case of pigments has been supplied with typewritten descriptive labels.

Copy for a total of 3,979 labels was sent to the printer during the year; 704 printed labels were received. Typewritten labels for exhibited series made during the year numbered 379. Typewritten labels of the style used in the study collections were also made for all the specimens of the Charles M. Higginson mineral collection.

For Ernest R. Graham Hall, copy was prepared which indicates the place on the geological scale of the specimens contained in each case. These labels include lists of the characteristic fossils of the

geological subdivisions represented, and the families to which the specimens belong. Common names of the forms represented are used as far as possible.

Mounting of photographic prints in the Department's album was kept going during the year, and a total of 760 prints was thus added. Typewritten labels were provided for all of them. Of the prints, 312 represent subjects for geological postcards which had been selected during the year.

**Exhibits.**—Regular entries in the zoological catalogues were made for 6,077 specimens. These were distributed as follows: mammals, 1,840; birds, 4,086; reptiles, 198; skeletons, 14; insects, 9.

Specimens of mammals were numbered as catalogued, and Museum labels were written and attached to 391 skins and 390 skulls. The skulls of 2,495 mammals were numbered. Special labels have been provided for the small skulls of large mammals, and the writing of these labels has begun. A card index has been prepared for these large skulls which, with a few other entries, adds 240 cards to the general index of the Bureau collection. A considerable number of guide labels has been placed on the drawers of the new storage room for skeletons and birds.

Owing to the absence of Assistant Curator Alfred C. Wood in the field, no cataloguing was done in the Division of Fishes. The cataloguing in the Division of Reptiles is nearly abreast of the accession, so no especial effort was made there and only 198 entries appear.

Exhibition labels were prepared and installed as follows: mammals, 96; birds, 92; reptiles, 49; fishes, 62. Copy for exhibition labels, including 681 for birds and 418 for insects, was prepared.

In the Department's photographic album, 1,268 prints were mounted during the year.

The state of the catalogues at the end of the year is as follows:

	Number of added labels	Total of entries to Jan. 31, 1929	Balance January 1, 1929	Total of labels added
Department of Anthropology	49	192,139	5,540	197,679
Department of Botany	63	262,137	26,714	288,851
Department of Geology	26	264,475	4,313	270,788
Department of Zoology	44	440,085	5,277	445,362
Library	14	173,177	2,128	175,305

## INSTALLATIONS AND REARRANGEMENTS

**ANTHROPOLOGY.**—The most notable event of the year was the opening to the public on June 1 of six new exhibition halls located

on the ground floor. In accordance with this plan all efforts during the first part of the year were bent toward completing this task with the best possible results.

A total of sixty-five exhibition cases, including three life-size groups, were installed during the year, located as follows:

Egypt (Hall J).....	6
Africa (Hall D).....	2
Madagascar (Hall E).....	25
Polynesia (Hall F).....	1
Malaysia (Hall G).....	2
Stanley Field Hall.....	7
Mexico (Hall 8).....	11
South America (Hall 9).....	8
Tibet (Hall 32).....	2
China (Hall 24).....	1
Total.....	65

Hall J, devoted to the archaeology of Egypt, has been completely reorganized. Previously Egyptian mummies had been exhibited individually in nineteen special cases which varied considerably in size and hardly permitted a detailed study. These old cases have been discarded, and the mummies and coffins have been aligned in a consecutive chronological order in two built-in cases extending 119 feet along the north wall of the hall. Walking along this case from west to east, the visitor is able to study human mummification and burial in Egypt through a period of 2,500 years, as the coffins on exhibition range in date from the tenth dynasty at about 2300 B.C. to the Roman period of A.D. 200. Encased top-lights make for an even diffusion of light, and variety of exhibits is insured partially by the use of slanting bases, and partially by placing mummy covers with carved portraits erect. Coptic fabrics from graves of early post-Christian centuries hang on the wall as a background, and painted linen shrouds from mummies occupy the end walls. A facsimile of the funerary papyrus of Ani is shown in the upper compartment of this case. A built-in case along the east wall of the hall, sixty-three feet in length, contains tomb-sculptures and frescoes in chronological arrangement, running north to south from the third to the nineteenth dynasty (thirtieth to thirteenth century B.C.). The compartment above this case contains plaster casts of important tomb and temple sculptures, the originals of which are still in place in Egypt.

A reproduction of the famous Rosetta stone is shown in an illuminated wall-case. Six X-ray pictures, made in the Museum's



Reindeer in the mountains of Alaska  
Photographed by Mr. J. H. Mearns  
and Mr. J. H. Mearns

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Division of Roentgenology, of minerals in the collection, actual size, are exhibited. A built-in case, thirty feet long, on the southwest side of the hall is used for a display of six complete Coptic garments in the lower compartment, and parts of garments, tapestries, and embroideries in the upper one. The statuette of Sennut, the famous architect and statesman of the eighteenth dynasty, has been placed in the center of the built-in case opposite. On a section of the southeast wall two carved wooden balcony fronts from Cairo are well shown by concealed electric lighting.

The installation of the Egyptian collections will be continued during 1929.

In the latter part of 1927 there had been prepared thirty-five cases for installation in the then proposed African Hall, which at that time was not ready to receive them. In the period from January to June of this year the exhibits in these cases were completely labeled, and 119 photographs and water-colors were added. Two cases were installed in addition to the thirty-five noted in the last Annual Report. The more important of these is a built-in case on the west wall of the hall, about forty-eight feet long and fifteen feet high. This case contains well selected examples of the woodworker's craft from Cameroons, West Africa, such as door-posts and window-lashes used in the houses of chiefs, large wooden effigies of human form, which elaborately shaped in the form of leopards, and a wooden bed intricately carved. A remarkable head ornament of wood from the Bamileke people, thought to be unique so far as the Cameroons region is concerned, is included in this exhibit. The other case installed during the year shows five excellent examples of shields of the Tzige of South Africa, made from the skins of the lion and rosette.

The arrangement of the thirty-seven African exhibiting cases in Hall D is carried out on an ethno-geographical basis. The area which is best represented is that of Cameroons, and exhibits from this region shown on the north side of the hall cover almost one-half of the entire collection. In the corner of the hall are three life-size figures of Cameroons natives. A wall at the entrance to the hall shows what portions of Africa are represented in the exhibits. There are small collections from the Congo region, the Zulus of South Africa, and the Shans of Kenya Colony. The culture of the Senegals is illustrated in four cases, and that of the Tzige in two cases displaying fine beaded vestings as well as wood and soap carvings. The exhibits in the hall include also representations of

West African life in Cameroon, and material from Togoland, the French Sudan, Angola, the Congo, and other parts of Africa.

During the year the collections obtained by the Captain Marshall Field Expedition to Madagascar of 1926-27 were installed in twenty-five cases in the eastern half of Hall E. The native cultures fall into three groups, and this arrangement has been followed in the installation of the hall. Material from the Plateau tribes is shown on the south side of the hall. These tribes—Imerina, Betsileo, Sihanaka, and Tanala—resemble the Malays in physical type and to a lesser degree, in culture. Their arts and industries are well developed. The collections include a great variety of textiles woven from silk of the domesticated silkworm, wild silk, cotton, hemp, raffia, bast and banana fiber. Except in the Imerina tribe, the designs are simple stripes, but show a fine sense for color. Fine mats from the Sihanaka tribe, steatite lamps of the Imerina, ornamental iron lamps of the Betsileo tribe, pottery, and a series of wood carvings are also shown. Attention should be drawn to the oil and water-color paintings made by native artists after European models. The Plateau tribes had no pictorial art of any sort prior to their contact with Europeans.

Material from the tribes of the southeast coast of Madagascar is displayed on the north side of the hall. The tribes of that region are more negroid than the Plateau people. They are, for the most part, ignorant of both weaving and pottery. They dress in flexible mats, and a series of these mat costumes, showing the various types, occupies one case. A single tribe, the Betsimisaraka, weave raffia cloths, examples of which are displayed.

The culture of the tribes of the west coast and south of the island is shown in five cases in the northeast corner of the hall. These people are negroid in type and are moderately advanced in all the arts, but their work exhibits strong African affinities. They have also been considerably influenced by Arabs, and certain Sakalava groups are Mohammedans.

The tribes of the south—Antandroy, Mahafaly and Bara—are represented by small general collections illustrating their arts and industries. Their wood carvings and weapons merit special mention.

The Sakalava of the west coast are more fully represented, the exhibits including implements, weapons, jewelry, matting, baskets, and textiles. A fine collection of gold and silver jewelry shown in one case is believed to be the best in existence. The figured raffia cloths displayed in another case are the only ones of their sort in any

known as *Arceuthobium* in English. The fungus are produced by driving the spore before the shell is woven. This is a widespread Malayan technique, and the Balaklava probably learned the process from the Javanese. At the present time this technique is dying out rapidly and may be lost in a few years.

The acquisition of a large drum from the Marquises constituted the presentation of a case to commemorate it in Hall F.

In December a life-size figure of a pygmy in the act of making fire was installed in one of the built-in cases in Hall G. The data for this group were obtained by Dr. F. C. Cole in connection with the Arthur H. Jones Expedition to Malaya of 1925-26. The figure was modeled by Mr. John G. Franklin, sculptor in the Department, partly on the basis of photographs, partly by using a live Negro as model. The figure represents a Semang, one of the typical pygmy tribes inhabiting the Malay Peninsula, who belong to the most primitive peoples of the world. The stature of the man reaches a height of only about four feet eight inches. They live in the extreme of the deep jungle and seldom come in contact with the more Malays who have a superior culture. Their eyes are often, but depend on game and forest products for their food. In order to make fire, they split a piece of bamboo in two, the side of one being bent out to a sharp edge. This is placed on the ground, edge up, and is held upright by four pegs. A cut is made across the bottom of the other half of the tube, and a bit of tinder is pressed into the opening with the finger. The ground is then rubbed rapidly back and forth across the fixed section, until the friction ignites the tinder.

In the foreground of the case the Javanese' mode of cooking is shown. They build their fire between three stones, and as they are unable to make pottery, they use large hollowed-out bamboo segments as cooking vessels. These are filled with water together with the food, or meats to be cooked, and are placed close to the fire so that the water is brought to a boil before the bamboo container is burnt through. It is placed in common use among the natives in connection with a native dwelling.

Practically all of the exhibits cases in Hall G. (Arthur H. Jones Collection) were completely altered and rearranged. A built-in case in the northern corner of the hall was installed with a series of native wooden instruments from Java used in an orchestra for the accompaniment of puppet and shadow-play performances.

Hall H, containing a total of thirty-five cases representing the ethnology of the Philippines, was thoroughly rearranged. The groups are now assembled along the south side, and other exhibits occupy the north side of the hall.

Two special cases with framework of bronze were constructed in the south corners of Stanley Field Hall. Each of them contains two large ceremonial feather masks from Hansa Bay, northern New Guinea. Two of the masks are nineteen and two are fourteen feet in height. They are placed on life-size casts of figures, modeled in the Department. The masks were formerly shown without these casts in Joseph N. Field Hall.

Exhibits in a case in Stanley Field Hall, which previously contained selected material from Madagascar, were changed twice during the year. The first exhibit consisted of three bamboo screens or blinds secured by Curator Laufer on the Captain Marshall Field Expedition to China in 1923. These blinds were made exclusively for the doors of the palaces of the Manchu emperors in the eighteenth century, are exceedingly rare, and are unique in their technique. They are composed of thin bamboo rods, chiefly of the spotted bamboo, carefully matched as to color, and tied together. Pictures are formed by strips of silk of various colors skillfully wrapped around each single rod, and are identical on both sides.

This exhibit was changed in October to make room for a display of some choice Chinese fabrics, also obtained by Dr. Laufer on the Captain Marshall Field Expedition to China in 1923. A set of three is shown—a table-hanging and two chair-covers which were used in the palaces of the Manchu emperors for the decoration of tables and chairs on ceremonial occasions, especially on New Year's day. They are a marvelous combination of tapestry weave in exquisite colors with gold brocade. These tapestries were manufactured for the imperial court in the K'ang-hi period (1662-1722). An elegantly decorated roll of purple satin brocade, nearly fourteen feet long, wrought in gold threads, likewise made for the palace in Peking, is shown. A green cut velvet panel of the K'ien-lung period (1736-95), and one in red velvet containing figures of the god of longevity and the Eight Immortals are in the same case.

In December the Eskimo collection presented by Mr. John Borden, and temporarily shown in Stanley Field Hall, was replaced with a representative series of selected objects secured by Assistant Curator William D. Strong from the Naskapi Indians of north-eastern Labrador during the operations of the Rawson-MacMillan

**Salmonier Expedition.** The exhibit includes various painted clothing, headwork of various sorts, and bowhead and harpoon implements of the Nulikapi. A series of photographs and original Indian drawings made in their winter hunting camps serve to depict the actual life of the people at the present time.

In another case in Native Field Hall is arranged a temporary exhibit of selected material brought back by Assistant Curator J. Eric Thompson from the Captain Marshall Field Archaeological Expedition to British Honduras. The exhibits include the weaponed obsidian referred to on pages 414 and 445, several fine jade objects, pottery of three periods, a necklace of small shells, and pieces of shellware and bone. The earliest pottery in the collection consists of finger-ridged bowls, the feet of which are frequently moulded in the shape of a woman's breasts. Two specimens were shown in the case were found in a well constructed vaulted chamber in the center of a mound, and contained a small heap of human bones. Other pottery vessels exhibited are decorated with two bands in high relief, one shows the effigy and are believed to have been used in religious ceremonies or have ritual which served the Maya as incense.

Among a selection of Chinese pottery and porcelain of the Sung period (A.D. 960-1125), acquired by Dr. Lucien, on the Captain Marshall Field Expedition to China in 1915, and now installed in Native Field Hall, is a tall faience vase of slender which was placed in a grave and held fast by the deceased person. The half-figural cover is surmounted by the figure of a hawk with outspread wings. On the long cylindrical neck are represented in high relief the sun symbolized by the three-foliated tree, and the moon symbolized by the hare pounding drugs in a mortar. Unicorns, phoenix, dragons, and lotuses combined with birds are emblematic of the four quarters, and twelve officials arranged in a circle are intended to preside over the twelve animals that form a cycle of twelve years. An interesting feature of this vessel is that gradually, in the course of hundreds of years, masses of lime, a very fine and highly-calcic, have penetrated through the cracks of the glaze and spread beneath it, forming large yellow and brown patches.

One of the finest examples of stoneware in this case is a small tall completely glazed in both sides. It is of somewhat shape of the same form, in the shape of circumferential petals and a spire in which are marked three very distinct characters by lead glaze, are also shown. In their efforts to produce glaze of beautiful colors

the Chinese potters took their models from nature. In white and greenish glazes they strove to emulate the colors of jade, as testified by the seal on a bluish gray porcelain bowl, which reads "resembling jade." A tea-pot, a tea-cup, and a bowl of Temmoku ware, decorated with a dark brown glaze interspersed with irregular yellow speckles in imitation of tortoise-shell, are other features of the exhibit. Included also are many exquisite and rare Temmoku bowls, white and light green bowls of Ting-yao and Yin-ts'ing types, hard and soft Chün-yao, and two unusual pillows of Ts'e-chou porcelain.

In A.D. 1108 the town Kü-lu in the southern part of Chi-li Province was submerged by a flood. Excavations made in recent years on the site of this town have brought to light quantities of pottery and furniture. One of these jars, shown in this same case (there are many others in the Museum's collections), has an over-glaze decoration in brown of floral designs arranged in medallions, and is provided with an inscription which yields the date A.D. 1107. The interesting point is that this vessel was made one year prior to the destruction of the town by the flood, and that it is one of the few dated pieces of Sung ceramics.

Eleven reinstalled cases representing the archaeology and ethnology of Mexico and Central America were placed in Hall 8. A remarkable collection of serapes from northern Mexico, previously presented by Messrs. Martin A. Ryerson and Homer E. Sargent, was reinstalled in a very effective manner. Other cases comprise Mexican pottery of the Aztec period; painted and incised pottery as well as large stone sculptures from the Valley of Mexico; the culture of the Toltecs and Tlaxcaltecs distinguished by fine necklaces, clay figurines, and masks of obsidian and onyx; and the archaeology of Mexico in the states of Guerrero and Oaxaca, as well as the archaeology of Panama.

One case of material never shown before, comprising gold and copper ornaments, necklaces, and ceremonial stone implements obtained by Dr. J. Alden Mason on the Captain Marshall Field Expedition to Colombia of 1922-23, has been added to Hall 9, which is devoted to the archaeology and ethnology of South America. Seven reinstalled cases in this hall contain the following: clothing and hunting implements of the tribes of the Orinoco Basin in Venezuela and Colombia; objects representing the domestic, religious, and ceremonial life of the tribes of the Northwest Amazon Basin; clothing and weapons of eastern or Amazonian Peru; dress

and personal ornaments of two tribes of the Great Plains and Indians of the Atlantic Coast of Brazil.

Two cases of Tibetan jewelry and high ceremonial hats were reinstalled and placed in Hall III. Material illustrating life in China was rearranged in a display case. The dress of a Manchu woman in one of the Hawaiian Chinese Collection cases (Hall IV) is now more efficiently shown by the addition of a facial cast which permits completion of the figure with the picturesque head dress adorned with five pill silver ornaments and silk flowers worn by the Manchu women at Peking. Five fly-sticks of white hornshair and two of soapstone have been added to one case, and three large writing-brushes to another case. A case containing Chinese metal mirrors, installed last year, was placed at the south end of the hall. A pair of leather slippers decorated with floral designs in colored beads on red velvet from Antium, presented by Miss Caroline Wicker, Chicago, has been added to a display of Chinese handwork in Hall III. In a case containing models of pagodas the black background has been changed to a screen of light color.

A total of thirty-seven cases were temporarily installed during the year. All cases in the hall on the ground floor were completely gone over before the opening of these halls, and the exhibits rearranged or put in order.

In the carpentry section of the Department twenty-four new screens for exhibition cases were constructed, five old screens were rebuilt, and 409 small individual shelves were made. In addition, 1,785 blocks for labels and 164 pieces of beaverboard for covering the bottoms of cases were cut, and twenty-five wooden boxes were made.

Twenty-two picture frames were made for Chinese and Tibetan paintings, and forty-seven of these were framed under glass. A total of 341 photographs, maps, and large descriptive labels were framed for use in exhibition cases. Six large wall-maps were hung in the hall on the ground floor.

Eighteen large paper-mosaic paintings were made for the display of costumes.

Extensive display equipment was rearranged during the year. Rearrangement of material was made in all storage rooms, and their condition improved. Material placed in the paint room was treated as usual, and is in excellent condition.

Decorative numbers marked on Museum objects during the year totaled 11,622.

The work of arranging ancient Egyptian and Coptic textiles and mounting them on linen for better preservation has been continued throughout the year. Five large portfolios of beaverboard were made for the safekeeping of the mounted fabrics.

In the modeling section of the Department, four life-size casts for the New Guinea dance-masks were completed. Head and hands were modeled and cast for the figure of a Manchu woman from Peking. A life-size figure of a Semang pygmy making fire was completed. The life-size figure of a Dyak head-hunter has been modeled in clay to be cast in the near future. Several miniature figures were modeled for the Menangkabau village group. Maya casts in Hall 8 were repaired and retouched. Forty Egyptian and Mesopotamian bronzes were treated by means of the electrochemical process.

In the repair section of the Department six hundred objects were treated, repaired or restored as follows: 113 pieces of Mexican, Maya, Peruvian and Colombian pottery, stone work, and gold; one wooden Japanese statuette; twenty-six Chinese paintings, pottery pieces, silver and stone objects; twenty-seven Tibetan paintings and painted wooden panels; one wooden cup from Formosa; sixteen musical instruments from Java, and one from Hawaii; four strings of Melanesian shell-money; 171 fabrics, sixty-five alabasters, ten pottery jars, five mummies, and three frescoes from Egypt; eleven pieces of pottery from Kish; fifty-one stone implements and one necklace of the French paleolithicon; eighty-five objects from Madagascar, and twenty African wood carvings. The incised lines in the cast of the Rosetta stone from Egypt were whitened to render the inscription clearer and more legible.

The books of the Department Library were vacuum cleaned and rearranged.

**BOTANY**—So much time was spent during the year in preparation for an ecological group of alpine vegetation, and on restoration of fossil plants for the Carboniferous Forest group, the latter of which is to be a feature of the rearranged Ernest R. Graham Hall in the Department of Geology, that the output of the Stanley Field Plant Reproduction Laboratories for the Hall of Plant Life was greatly reduced.

The most notable addition to the exhibits in the Hall of Plant Life was the reproduction of a cassava plant completed early in the year from material secured by the Marshall Field Brazilian Expedi-



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tree of 1881. The massive plant was included with the other material of the spruce family, which at that time well represented through still admitting the admission of an adequate specimen of the Brazilian rubber tree, which is perhaps the most important economic plant of the family.

The Myrtaceae received an imposing and handsome addition in a flowering branch of the "Malay apple," already represented in its budding stage by a reproduction of a specimen secured in Siam by the Stanley Field Glacis Expedition of 1912. As might be concluded from the position of the parabolical bracts on the branches, the flowers of the Malay apple, like those of many other tropical trees, were directed from the back of the large west branch, even from the back, with sometimes and the trunk. The branch which has been added during the year was obtained by the Captain Marshall Field Himalayan Expedition of 1924. By use of preserved specimens, as fossils, as well as color-photographs and photographs made in the field, the flowers have been carefully rendered in glass and colored by Mr. Emil Sells, preparator in the Stanley Field Plant Reproduction Laboratories of the Museum.

The last western family, which until this year has not been represented in the Hall of Plant Life, a hickory branch in fruiting condition was collected near Chicago and reproduced as an illustration of the general characters of its group. It has been installed, together with a selection of fruit, wood and other dry plant material of its family, in a case adjoining the case.

A branch of Central American mimosas, the so-called *Honduras mimosas*, which with its large foliage differs so greatly in appearance from the small-leaved West Indian or Cuban mimosas, was obtained from the Government Experiment Garden at Port of Spain, Trinidad. The branch has been reproduced in the Stanley Field Laboratories in the Museum to be used for a display of various species of mimosas being prepared for temporary exhibition in Stanley Field Hall, and for subsequent permanent installation in the Hall of Foreign Woods.

Some alpine plants, destined to form a part of an ecological group, were collected on the Snake Range, near Lawrence, Wyoming, in 1921. Reproductions of a lot of these plants have been assembled in a small temporary exhibit of alpine flowers and installed in a corner case in the Hall of Plant Life, with labels and photographs showing the general character of the vegetation of the locality where

they were collected. They include the Rocky Mountain aster (*Erigeron uniflorus*), which resembles strongly the common English daisy, the yellow avens (*Geum turbinatum*) with buttercup-like flowers and rosettes of much divided leaves, the yellow alpine ragwort (*Senecio Fremontii*), a sedge (*Carex* sp.), and the bistort (*Polygonum bistortoides*), a characteristic alpine plant of the dock family.

Among exhibits under way for the Hall of Plant Life may be mentioned a flowering and fruiting plant of the so-called Panama hat palm which, in spite of its name and its palm-like leaves, is not a palm, although it belongs to an allied family.

The reorganization of the storage collections of economic material, and the new record system which has finally been carried to completion during the year, has made it possible to locate and add some desirable material to the existing installations. The case of true peppers, for which the Stanley Field Plant Reproduction Laboratories furnished the model of the pepper vine as related in last year's Report, has thus been completed as far as the Museum's material permits.

New labels have been placed in Hall 29 as well as in the palm collection and among the food products in Hall 25.

An attractive case containing panels of rare and fancy woods from remote parts of the world was placed on exhibition in Stanley Field Hall. The exhibit, which proved of considerable interest to both the public and lumbermen, comprises woods which, due to their valuable qualities such as density, color and figure, are now gaining favor with the American wood-working industries and are being used extensively for various purposes. For example, there is padouk, one of the woods represented in the case, which possesses a brilliant red color and is used mainly for the manufacture of furniture. Another is the well-known commercial wood, lignum-vitae, which is renowned for its great strength and density. These properties, combined with its self-lubricating properties, make it especially adapted for bearings under water. It is used for making bushing-blocks for lining the stern tubes of propeller shafts of steamships. Another kind shown is Honduras rosewood, which is used for making the bars of percussion instruments, xylophones and marimbas, for which purpose it is particularly fitted because of its density and resonance.

The project of reinstalling the wood exhibits in the Hall of North American Woods has been started with the rearrangement of the case allocated to the pignut hickory. The substitution of a



and Mexico. The adulterants include as diverse articles as peas, chicory, malted barley, wheat, dried prunes, soy beans, dandelion root, and rice.

From 316 specimens of tea available in the Museum's collections thirty-three have been chosen for exhibition. They include representatives of the various grades of tea from Japan, Formosa, China, South Carolina, Ceylon, Jamaica, India and Java. There are shown also brick tea from China and "soluble tea" from Ceylon. The tea exhibit is illustrated by eight photographs showing methods of cultivation and preparation for market in Ceylon, India, and China.

A collection of forty-four of the chief edible nuts of the world has been placed on exhibition. Of these twenty-four are from the eastern and twenty from the western hemisphere. Among the former are displayed coconuts, French chestnuts, almonds, pistachio nuts, longan nuts, litchis, Indian almonds, and English, Chinese, and Japanese walnuts. The American nuts illustrated include pinyon nuts, black and California walnuts, hickory nuts, pecans, chestnuts, acorns, peanuts, cashew nuts, and Brazil nuts.

Through the courtesy of Mr. O. F. Phillips of the Bureau of Agricultural Economics, United States Department of Agriculture, Field Museum has added a tray of barley standards to its exhibit of types illustrating common varieties of grains and grading factors of the official grain standards of the United States.

In 1928 label copy was written for all new exhibits, 244 labels being required for their explanation.

During the year twenty-five large photographs, representing various economic botanical subjects, have been installed in Hall 25. The enlargements were furnished by the Museum's Division of Photography, and the original prints or negatives were obtained from various sources. These illustrations portray phases of the industries connected with coffee, tea, spices, root crops, sugar, and fruit marketing.

It is a great satisfaction to observe the rapid increase in size and scientific value of the Herbarium. It is composed of more than 580,000 sheets, besides a large reserve of probably 100,000 unmounted specimens, mostly from the Old World, which are awaiting incorporation.

The plant mounter prepared for insertion in the Herbarium, by gluing and strapping, 12,330 specimens, a substantial increase over the number mounted in 1927. He also attended to the fumiga-

tion of all material received, and prepared, by stamping the greater part of the Sieff Herbarium, presented to the Museum a year ago.

The Custodian of the Herbarium, who was on leave of absence during part of the year, colligated a large number of sheets and identified them with the permanent collection, this identification involving the writing of many new labels, and being important in certain groups.

Work of the technical staff consisted primarily in making the current material received available for study by distribution of the sheets, as soon as mounted, into their proper places, and by naming new specimens and correcting wrongly named sheets already in the Herbarium cases. Because of the expeditious methods adopted for mounting and handling the specimens, it is now possible to file them permanently in the Herbarium the same day they are received. With such prompt distribution, all specimens are quickly and readily accessible for the use of members of the Staff or of outsiders who visit the Herbarium for study purposes. Due to this ready availability of its specimens the Herbarium compares favorably in efficiency with any other large herbarium in the United States.

More than 10,000 mounted sheets, mostly from Central and South America, were added to the Herbarium during the year, thus increasing greatly its permanent value. In the course of the distribution of these plants through the Herbarium hundreds of sheets were determined, and the names of other specimens were corrected. Several large collections which had awaited naming for many years were determined, at least in part, and placed in the Herbarium, where they will be useful for study purposes. In its representation of the floras of the West Indies, Mexico, and Central and South America the Herbarium compares favorably with the other large herbaria in the United States, and for certain areas, such as Yucatan and Peru, the Museum's collection is unequalled elsewhere.

Casualties.—A large part of the work of the Staff of the Department during the year, has been devoted to new installations and rearrangements of cases. The heavy work has been required by the change of color of backgrounds, which has necessitated the removal of all the specimens in each case and their replacement after the change of background was completed. During this rearrangement, opportunity has been taken to look to or rearrange the labels of the cases, whenever the layout and value of the material could be thus improved. Through clearing of space and reindexing of the

sashes and other wood of the cases has been carried out in connection with this work. In Ernest R. Graham Hall and in Hall 36, nearly all the cases, and in Hall 34 and Clarence Buckingham Hall, a large number, were reinstalled in this manner during the year.

In Stanley Field Hall one case was installed; in Harlow N. Higinbotham Hall, one; in Systematic Minerals (Hall 34), fourteen cases; in Clarence Buckingham Hall, four; in Petroleums, Clays *et cetera* (Hall 36), thirty-six, and in Ernest R. Graham Hall, forty-three, making a total of ninety-nine cases.

In Stanley Field Hall an exhibit of some of the fossils, ores and other geological specimens collected by Assistant Curator Roy in Baffin Land and Newfoundland while with the Rawson-MacMillan Subarctic Expedition of 1927-28 was installed in a single case. From Baffin Land are shown in this case, thirty-nine specimens of fossils of Ordovician age and seven specimens of igneous rocks; from Newfoundland, thirty-six specimens, mostly trilobites, of fossils of Cambrian age, and twenty-five specimens of ores and minerals. Several colored photographs of scenes in Baffin Land and outline maps showing routes followed are included in this exhibit.

The exhibit of ores and minerals of South America collected by Associate Curator Nichols as a member of the Captain Marshall Field Expedition of 1926, which had been previously exhibited in Stanley Field Hall, was removed and distributed among the systematic mineral and ore series in Frederick J. V. Skiff Hall and Hall 34.

In Harlow N. Higinbotham Hall the beautiful rose quartz bowl contributed by Mr. R. T. Crane, Jr., was installed in the case of quartzes, and the cut emeralds, agate and vesuvianite which he presented were installed in their respective groups. Specimens presented by other donors during the year were also added to the exhibits in this hall. In order to give a more orderly arrangement, the exhibit of miscellaneous gems in the hall was exchanged in position with part of the exhibit illustrating folk-lore of gems. Thorough cleaning of the cases was carried out in connection with these changes.

In Hall 34 the work of changing backgrounds and reinstallation begun last year was continued and the work completed during the year for fourteen cases. These included two cases of the Chalmers crystal collection and twelve cases of large mineral specimens. The improvement in the attractiveness and visibility of the exhibits, as as well as in the general appearance of the hall, brought about by

these changes is marked, and has been favorably commented on by many persons. In connection with this rearrangement a number of new specimens have been added to the exhibit. These include one-half of a case of skeletons presented by Mr. W. J. Chalmers and a number of specimens from the natural collection presented by Mrs. Charles W. Higgins.

In Classroom Dickinson Hall the two remaining cases of vertebrate skulls have been fitted with new backgrounds and mounted. A great needed improvement has been provided by the installation of electric light in the case of large aquatic mammals from Utah. The lighting of the interior of the case, and the display of the transparency of the rostrum of the whale through it, gives a very pleasing effect.

In Hall III, devoted to geophysics, clouds of more work progress was made in the work of changing backgrounds and rearrangement. Forty-one cases were removed and their backgrounds refitted. Of these cases, thirty-three have been presented. The work has required a careful handling of the entire collection of minerals, clays, sands, soils, filter's media and gravities, and most of the coal and petroleum collections. While in many cases the installation is the same as before, changes have been made wherever they seemed desirable. For example, the collection relating to the uses of acid has been changed and changed to one illustrating the uses of all forms of acids. The case showing economic uses of sulphur and magnesia has been transferred to the corner adjoining Frederick J. V. Hall Hall, and that containing the model of a coal bog and some other exhibits has also been moved to the corner.

Very to present of other work in Frederick J. V. Hall Hall no changes of backgrounds have yet been undertaken. Some additions have been made to the exhibits of this hall, notably that of the series of prints, with of those contributed by the United States Geological Survey. Other sections of a more character have been made here.

In Ernest R. Graham Hall the work of changing backgrounds and making rearrangement, as well as that of handling artificial lighting for the hall and the case in higher natural light, has continued on in the last few months of the year. As in the other halls, the work of rearrangement required the moving of many specimens, the filling of labels, the refitting of brackets and shelving and repainting of the whole interior of cases, as well as of cases and supports of specimens. Except for some cases of insects

brate fossils, this work was completed. The hall was reopened to the public early in June. In order to give space at the ends of the hall for certain large groups now under construction, and to introduce some new exhibits, some changes in the arrangement of cases and bases were made. The Yorkville and South American Mastodon mounts, the cast of the *Megatherium* and the model of the Moa, all of which had occupied the north end of the hall, were moved to new positions near the center, space being obtained here partly by removal of the cast of *Colossochelys*. The exhibit illustrating methods of fossilization was withdrawn from the case which it had occupied, and an exhibit comparing ancient and modern plants and animals was installed in its stead. Some new specimens were introduced into this exhibit, part of them having been kindly presented by the General Biological Supply House of Chicago. A case containing ammonites was vacated, and three cases changed in position in order to bring corresponding exhibits into juxtaposition and make room for the exhibition of the great slab of the crocodile-like reptile, *Steneosaurus*, acquired during the year. Several specimens obtained by the Captain Marshall Field Paleontological Expeditions to South America in 1922-26 were added to the exhibits in the cases devoted to this area. These included skeletal parts of the Pleistocene horse-like animal, *Hippideum*, and of the short-faced bear, *Arctodus*. An egg of the giant extinct bird *Aepyornis* from Madagascar was transferred from the Department of Zoology and placed in the case of specimens of extinct birds.

The Rancho la Brea fossils, which had previously occupied two cases, were condensed to one case, and in the case thus emptied there was installed a collection of fossil rhinoceros, tapir, tiger-cat and other remains collected in Mongolia by the Third Asiatic Expedition of the American Museum of Natural History, Field Museum cooperating. Some tusks and other remains of the Mammoth and a drawing of a restoration of the Mammoth by Mr. C. A. Corwin completed the installation of this case. In another case containing other specimens of the Mammoth and Mastodon, the superb Mammoth tusks presented by Mr. John Borden were installed.

Of the first ten mural paintings of the series being presented by Mr. Ernest R. Graham, representing typical scenes in different geological periods, prepared for the hall by Mr. Charles R. Knight, seven have been placed in final position on the walls of the hall. The subjects of these paintings are: The Chicago Coral Reef,

Exhibition  
Garden of the University of California  
Berkeley, California  
June 1915



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case of *Lepidodendron* and the smaller *Sigillaria* stems, by applying to the molded trunks a specially prepared cortex produced in a mold which in each case is a perfect replica of corresponding fossils in the Museum's collections, or in the case of *Lepidophloios*, of a specimen kindly loaned for the purpose by the United States National Museum.

The large quantity of foliage required for the *Calamite* reconstructions has been produced also by mechanical means, and altogether the work on the material for this exhibit is so far advanced that as soon as the case for the group is built, the parts already completed may begin to be assembled, and will give a fair idea of the eventual appearance of the group. This exhibit is to be installed at the south end of Ernest R. Graham Hall.

In the paleontological laboratory a considerable amount of repairing and remounting of vertebrate fossils incident to the re-installations in Ernest R. Graham Hall was carried on, and the work of preparing, for exhibition and study, the vertebrate fossils collected by the Captain Marshall Field Paleontological Expeditions to South America, was continued. Repairs to specimens included those of broken parts of the skeleton of the extinct bird *Dinornis* and of the ribs and sacrum of the mounted skeleton of the large dinosaur, *Apatosaurus*.

Specimens newly mounted or remounted include a skull and two limbs and feet of the extinct short-legged aquatic rhinoceros, *Teleoceras*; of both fore and hind limbs of the North American camel-like animals, *Oxydactylus* and *Stenomylus*; a skull of the large, pig-like *Elotherium*; a skull of the South American hoofed mammal *Astrapotherium*; a skull of the marine reptile *Platecarpus*, and a pair of lower jaws of the *Mastodon*.

Specimens cleaned of matrix and prepared for exhibition or study included a part of the skeleton of the large, extinct South American ground sloth, *Scelidotherium*; several jaws of *Hippideum*; a jaw of *Arctotherium*; a skull of *Nesodon*; additional parts of the skeleton of the little known tapir-like *Homalodontotherium*; bones of a small South American dinosaur; skulls of a new type of a large South American marsupial carnivore, and a skull four feet in length of the great ground sloth, *Megatherium*.

A mold and two casts of the Gladstone meteorite acquired during the year were made in this laboratory by Preparator J. B. Abbott for purposes of record and distribution to other institutions.

The chemical laboratory has been in almost constant use throughout the year. For about three months its facilities were largely employed in the preparation of parts of the filings used in the construction of the Forest of the Carboniferous Period. For this work it was found necessary to provide a forced draft for the load. This was accomplished by installing a blower propelled by an electric motor and connected by a hose with the stack. A rotating cap was also provided for the stack in place of the fixed cover previously used.

Many chemical analyses and investigations were carried on in the laboratory by Associate Curator Nichols, the most important being a complete quantitative analysis of the Tilden, Illinois, stone meteorite. Other investigations and analyses were: investigation as to the durability of a number of papers under consideration for use in Museum publications; investigation as to the suitability of a paper treated for special use on a Museum expedition; investigation of a pigment for use on the backgrounds of Museum groups; investigation of the nature of a plaster used in tanning resulting in discovery of the possibility of its preparation of a much lower cost than that at which it had hitherto been obtained; investigation of the causes of sediments in the solutions used in the Divisions of Entomology and Photogravure; investigation of a solution used for the preservation of ancient Egyptian textiles; investigation of the nature of the crystals occurring on an horn skull; analysis of the filling of an horn tooth; investigation of the nature of a pottery band, and analysis of the copper used in an aboriginal tool.

In addition, the restoration of Kati, known by the Park people, of the method has been carried on in the laboratory almost continually throughout the year under the supervision of Associate Curator Nichols. A large number of these lesions were removed, and a modified form of the process was devised and used for the removal of a malignant pitting that had formed on several Egyptian bronzes. When several years had elapsed before it can be determined whether this process will prevent the return of the pitting, no indication of its origin have thus far been noted. A partly chemical treatment was likewise devised for the treatment of the pitting with results which have also thus far been favorable.

To the mechanical laboratory equipment consisting of a lathe, grinder and drill press, and a planer, with two photo lathe for operating them, was added during the year, and the work in the laboratory was thereby greatly facilitated. The preparation of

the linings and battens and the refitting of shelves for sixty-four upright cases was carried on here by Preparator Valerie Legault, who also installed the linings and shelves in the cases. The frameworks for three large tree trunks, eighteen feet in height, for the Carboniferous Forest group were also constructed here by Preparator Legault and several bases for mounts in Ernest R. Graham Hall were made by him.

Under the supervision of Associate Curator Nichols, a model of an oil well for exhibition in connection with the exhibit of petroleum in Hall 36 was brought nearly to completion in this laboratory. The model is six feet high, three and one-half feet long and eight and one-half inches deep. It is intended to reproduce essentially the features of a small area in the Lawrenceville, Illinois, oil district. The scale of the model is five feet to the inch. As this scale does not, however, give opportunity to show the true depth at which the oil occurs, a gap is left in the model between the surface features and that part of the model showing the oil-bearing strata.

The surface features show a derrick, pumps, engine, equipment for drilling and various accessories employed both to drill a well and to raise the oil to the surface. The strata passed through to reach the oil are shown in their relative positions, and the relative situations of the oil, gas and salt water in the oil-bearing strata are also shown. The dissimilarities of the strata are brought out by differences in color and texture in the materials used in constructing the model, and they correspond to those which actually occur in the formations passed through in the Lawrenceville district.

**ZOOLOGY.**—Progress in the preparation and installation of habitat groups of large mammals was unusual, probably exceeding that of any previous year. Four groups of large size were finished and are now on exhibition, as well as one group of small antelopes. Also four cases of large mammals were added to the classified exhibits in George M. Pullman Hall.

Of outstanding interest was the initiation of installations of Asiatic mammals in William V. Kelley Hall. Case construction for one-fourth of this hall was completed, and two important groups were put in place. These were the groups of Marco Polo's sheep and the Asiatic ibex, both prepared from specimens obtained by Colonel Theodore Roosevelt and Kermit Roosevelt on the James Simpson-Roosevelts Asiatic Expedition of Field Museum.

The group of Marne Falls sheep consists of five animals, three males and two females, shown standing a little behind at the base of snow-clad cliffs the Pacific coast of Vancouver at an elevation of about 10,000 feet. The whole effect forms a beautiful picture, carrying an impressive demonstration of the bleak, forbidding nature of the habitat of these powerful animals.

The group of Asiatik sheep portrays a scene in the Thien Shan Mountains of north central Asia. Set in the deep snow, the animals represented are those of great elevation, but instead of sweeping slopes, broken ridges and mountain tops, there are steep, sheer, snow-filled canyons with nearly perpendicular sides. The central figure of the group is a magnificent ram carrying long, curving horns of twisted iron, an animal which fell to the rifle of Mr. Kermit Roosevelt. To lower left, among the great twisting branches of the world. A slightly smaller ram is shown feeding in a precarious position above the central figure, and at the sides are a young ram and old ewe and small kids.

Both of these groups are very successful, and reflect great credit upon Taxidermist Julius Fryman, who mounted the animals, and Staff Artist Charles A. Corwin, who painted the backgrounds.

Two mammal groups, prepared chiefly from specimens obtained by the Field Museum (Chicago) Early Near Eastern Expedition, were completed during the year. One is a large group of the handsome mountain goats, and the other a small group of the distinctive antelope known as the ibex. Both are the work of Taxidermist Louis L. Voss, and both have been installed in Carl E. Akeley Memorial Hall.

The group of mountain goats consists of five animals: a fine large bull in prime condition, presented by Captain Harold A. White, a smaller bull, two females, and a half-grown young animal. These are represented as climbing a steep white snowfield that reposed on a high snow mountain ridge. Like other African groups in the same hall, this one is prepared without painted background, being set on three sides. An improved method of lighting had been applied to it with a very effective result.

The group of ibex ibex, although small in size, has proved to be very attractive. A pair of adult animals, strongly tinged with yellowish, are shown with a fine, newly-born young one standing to the right, and other smaller goat growth characteristic of some of the more of nature Africa.

In the hall of American mammal habitat groups, a group of glacier bears was installed in the last remaining space in the eastern half of the hall, thus bringing to completion its first major unit which now includes twelve large groups of high quality. The glacier bear group has for a setting the picturesque glacier-bound mountains of the Alaskan coast. An old female bear is shown with her three cubs, the mother lying down by an alder bush with her eyes watchfully devoted to the youngsters, one of which is curled up beside her, while the others are playfully perched on nearby rocks. The group was prepared by Taxidermist C. J. Albrecht.

In George M. Pullman Hall several important additions and improvements were made to the classified exhibit of hoofed mammals. A case of American mountain sheep shows the Canada sheep or Rocky Mountain bighorn, the Lower California sheep, the Stone's sheep of northern British Columbia, and the Alaskan sheep or Dall's sheep. These are variously posed on a single base of artificial rock-work.

Another new case in George M. Pullman Hall is devoted to two fine specimens of the European red deer, presented to Field Museum by Lord Astor of England. A full grown stag with fully developed antlers is here posed on a natural base, with a young male of the abnormal type known in Scotland as a "cromie." Tufts of Scotch heather are seen at their feet, and the whole effect is very pleasing. The specimens were mounted by Taxidermist Leon L. Pray.

Further new features in the systematic exhibit of mammals are single specimens of the rare and peculiar giraffe-like mammal known as the okapi, and a large bull mountain nyala, each of which occupies an entire case. The okapi was secured by Mr. Edmund Heller on the Captain Marshall Field Central African Expedition, and has been carefully prepared by Taxidermist C. J. Albrecht.

Reinstallation of five screens of mammals was carried out in Hall 15, and all old style cases were eliminated from this hall.

In Hall 21 a case of American ducks was installed with sixty-nine specimens belonging to forty species, representing a practically complete collection of this group of birds. A pair of the extinct Labrador ducks is shown, the male being in replica, because the actual specimen possessed by the Museum is too valuable to risk remounting. Six specimens were added to the case of diving birds and gulls.

Two cases of fishes were placed in Hall 18 to occupy the remaining space in the east half of this hall. The species shown are representa-

tive food and game fishes of the Gulf of Mexico. One case is devoted to eggs and skins secured from the Marine Biological Laboratory of Woods Hole, Massachusetts, and the other to miscellaneous fishes, including three important game fishes of Florida waters, the largemouth, the bluegill, and the spotted bass, prepared from specimens presented by Mr. A. F. Miller of Chicago.

The new cases of fishes were installed experimentally in series of pale green, lined with labels fasted to match. The effect was so satisfactory that consideration of another case in the same manner was carried out, and a beginning made for the use of this color for screens throughout the fish exhibits.

The exhibits of reptiles and amphibians, for which new material has been accumulating, were greatly improved by the installation of two new cases of the A-type in Hall 18. One of these contains fourteen specimens representing nine species of frogs and toads, nine specimens of an series of salamanders, and a *Bufo* newt. The material shown are really North American and, with few exceptions, the preparation is by the process of reproduction in cellulose paste, the so-called "cellulose" process developed by Taxidermist Leon E. Wilbur. The second case includes twenty-four specimens of twenty-one species of snakes, mostly common American species among which are several varieties of rattlesnakes and other poisonous snakes.

The selection and preparation of insects for exhibition was advanced to a point where material for two cases is ready for installation, awaiting only the printing of labels. One of these provides for an important and original series of wingless, winged and aquatic, and the other for 128 species and varieties of North American butterflies.

The entomological exhibit of mounted specimens was transferred in large from Hall 17 to Hall 16, providing space for construction necessary in the development of Hall 17 for holding groups of *Adalia* specimens. Cases and other machine paraphernalia were temporarily placed on the north side of Hall 16. Construction of built-in cases for the holding groups of *Adalia* specimens was begun and carried to an advanced stage in the west half of Hall 16. During construction work in Hall 16, several groups of *Adalia* specimens were transferred to temporary positions in the south half of Hall 16. Entomological Hall. In this hall important changes in lighting method were undertaken by which the cases are individually illuminated by light transmitted in the tops of the cases. At the close of the past work was in progress to continue these changes throughout the hall.

The paintings of Abyssinian birds and mammals by the late L. A. Fuertes were transferred from Stanley Field Hall to Hall 21, and a part of them removed to smaller cases. Duplicate or outworn material, numbering 501 mounted birds and sixty-one mounted mammals, was disposed of.

Five more large groups of mammals were in various stages of preparation at the close of the year. These are the Indian rhinoceros, Alaskan brown bear, polar bear, South American swamp deer, and African cony or dassie. A case of waders and shore birds for the systematic exhibit of American birds was nearing completion.

Progress was made in storing, preparing, and caring for the unusual amount of material recently received in raw condition from expeditions. The entire collection of large mammal skins was overhauled and rearranged, and superfluous specimens were eliminated. The skin dresser was occupied with much fresh material, and in addition 131 skins were dressed by outside agencies. Skulls of mammals to the number of 1,375 were cleaned under contract, and 987 by the Museum osteologist, making a total of 2,362 cleaned.

Rearrangement of the reference collections of mammals and birds was carried out so far as available cases and drawers would permit. Six of the new metal cases are now in full use in the Division of Mammals and eight in the Division of Birds. During recent years, incoming material has been given temporary storage in scattered places wherever space could be found. This condition is now partially relieved and, at least in certain groups, all material of one kind may be found together. The trays in the new cases have been supplied with metal label holders in which labels have been placed showing the contents of each tray and thus greatly facilitating the consultation of the specimens.

#### THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

Sixteen years ago, in 1912, through the generosity of Mr. N. W. Harris, the Museum added this Department. Its function is to extend the work of the Museum into the schools of Chicago by delivering to them portable cases containing natural history and economic exhibits.

Since that time 1,070 cases have been prepared. Fifty of these were completed in 1928.

During these sixteen years there has been a revolutionary advance in methods of preparing and modes of exhibiting natural history



*Albizia lebbekii* (Lam.) DC.  
Benth. *Fl. Australas.* 1: 116. 1843.  
Roxb. *Fl. Indica* 1: 116. 1832.  
DC. *Prodr.* 1: 116. 1825.  
Lamour. *Bot. Voy.* 1: 116. 1825.  
Lamour. *Bot. Voy.* 2: 116. 1825.  
Lamour. *Bot. Voy.* 3: 116. 1825.  
Lamour. *Bot. Voy.* 4: 116. 1825.  
Lamour. *Bot. Voy.* 5: 116. 1825.  
Lamour. *Bot. Voy.* 6: 116. 1825.  
Lamour. *Bot. Voy.* 7: 116. 1825.  
Lamour. *Bot. Voy.* 8: 116. 1825.  
Lamour. *Bot. Voy.* 9: 116. 1825.  
Lamour. *Bot. Voy.* 10: 116. 1825.  
Lamour. *Bot. Voy.* 11: 116. 1825.  
Lamour. *Bot. Voy.* 12: 116. 1825.  
Lamour. *Bot. Voy.* 13: 116. 1825.  
Lamour. *Bot. Voy.* 14: 116. 1825.  
Lamour. *Bot. Voy.* 15: 116. 1825.  
Lamour. *Bot. Voy.* 16: 116. 1825.  
Lamour. *Bot. Voy.* 17: 116. 1825.  
Lamour. *Bot. Voy.* 18: 116. 1825.  
Lamour. *Bot. Voy.* 19: 116. 1825.  
Lamour. *Bot. Voy.* 20: 116. 1825.  
Lamour. *Bot. Voy.* 21: 116. 1825.  
Lamour. *Bot. Voy.* 22: 116. 1825.  
Lamour. *Bot. Voy.* 23: 116. 1825.  
Lamour. *Bot. Voy.* 24: 116. 1825.  
Lamour. *Bot. Voy.* 25: 116. 1825.  
Lamour. *Bot. Voy.* 26: 116. 1825.  
Lamour. *Bot. Voy.* 27: 116. 1825.  
Lamour. *Bot. Voy.* 28: 116. 1825.  
Lamour. *Bot. Voy.* 29: 116. 1825.  
Lamour. *Bot. Voy.* 30: 116. 1825.  
Lamour. *Bot. Voy.* 31: 116. 1825.  
Lamour. *Bot. Voy.* 32: 116. 1825.  
Lamour. *Bot. Voy.* 33: 116. 1825.  
Lamour. *Bot. Voy.* 34: 116. 1825.  
Lamour. *Bot. Voy.* 35: 116. 1825.  
Lamour. *Bot. Voy.* 36: 116. 1825.  
Lamour. *Bot. Voy.* 37: 116. 1825.  
Lamour. *Bot. Voy.* 38: 116. 1825.  
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material. This Department has kept pace with that advance in all its phases. The cases prepared in recent years have carefully fitted backgrounds and foregrounds, providing a complete natural setting for the specimens displayed. Like the larger stationary cases in the Museum, they represent an almost perfect illusion of the subject as it appears in nature. Although the preparation of such cases is much more intricate, and makes greater demands on the time of the preparators, the production in numbers of new cases has been maintained.

The cases are prepared with every regard for their greatest possible durability. Considering the very frequent transportation, with inevitable changes of temperature and humidity which they undergo, and the almost constant handling by children in the schools, the breakage has been very small. In 1928 repairs were made to 229 cases, and every case was given a thorough inspection and cleaning.

The regular service of two cases to each school, changed every two weeks, has been maintained for 402 institutions. Of this number 282 are schools: 271 of them public, five private, five Roman Catholic, and one Lutheran. The other institutions are eight Y. M. C. A.'s, five branch libraries, three community centers, one boy's club, one hospital, one orphanage, and one boy's detention home. For the summer vacation period forty-three cases were loaned for display at Navy Pier, twelve to the Junior Department of the Art Institute, and twelve to Camp Algonquin, a camp for Chicago children of needy families. Cases were shipped out of town to institutions as follows: two to the Nashville Museum of Art, two to the Children's Museum at St. Joseph, Missouri, two to the Buffalo Museum of Science, one to the Chicago South Shore and South Dearborn for display in South Bend, and ten, by the request of the Director of the Illinois Department of Conservation, to the Illinois State Fair at Springfield. Six cases were loaned by the Hunt Ridge Expedition of the Chicago Boy Scouts of the 11th Regiment Artillery. A loan case was used to make a Field Museum exhibition at the International Live Stock Exposition at the Union Stock Yards, thus effectively reaching thousands of potential buyers.

### ART RESEARCH PLANTS

During the past year the art research work continued in Field Museum by loans from the Art Institute of Chicago has gained materially over previous years, both in the quality of the artistic production, and in the public's acceptance of the general need of

such study. The value of this type of research has been recognized by other schools of art, and the plan followed in the work has been adopted by other museums and kindred institutions.

Several hundred students, both from beginners' and advanced classes in the Art Institute, participate in these studies. The Art Institute provides the instructors, and Field Museum makes available its study collections, as well as the publicly exhibited material, for sketching and research. Much meritorious pictorial and design work has been produced by the students in these classes.

### DIVISION OF PUBLIC RELATIONS

The attention of the public has been drawn to Field Museum's activities, through publicity in the daily press of Chicago, and the press of the entire United States, to a greater extent during 1928 than in any previous year. Also, the more important news concerning the Museum has been given world-wide circulation by international news agencies.

In addition to newspaper publicity, the Museum has received attention in important periodicals of various kinds; it has benefited from advertising, given as in past years without charge, through the generosity of those in control of various advertising media; and it has received further publicity through radio broadcasting and in motion picture newsreels. The Museum's own direct advertising efforts, through distribution of direction folders and other literature designed to attract more visitors from among both local residents and strangers in the city, have been continued as in past years.

NEWSPAPER PUBLICITY.—The Division of Public Relations released a total of 349 news stories during 1928, or an average of more than six each week. Copies of these stories were furnished to the seven major daily newspapers of Chicago; to some sixty community and neighborhood papers published in the city; to more than fifty of Chicago's foreign language newspapers; to some fifty suburban newspapers covering all the principal suburbs, cities and towns within a fifty-mile radius of Chicago; and to all the principal national and international news agencies.

Many of these stories were accompanied by photographs, prints from 261 negatives having been released by the Museum, copies of each of these being sent to a list of twenty-one newspapers and news photograph agencies, through which hundreds of additional copies were distributed to newspapers all over the country. The

photographs have been especially well received by newspapers publishing photographic sections.

Inasmuch as the interest of editors necessarily reflects the interest of the public, it is especially gratifying to record the fact that during the year the Museum has received numerous requests from important newspapers and news feature writers asking that their names be added to the publicity mailing list.

The news stories ranged from items of fifty words or so up to full column articles, the majority running from about one-half to two-thirds of a column. Every story received was printed in several Chicago newspapers and some in all, and the majority of them received extensive space in papers throughout the country. In many cases newspaper staff writers have expanded these releases into full page feature articles. Many Museum activities reported in the press have drawn editorial comment both in Chicago papers and the papers of many other cities.

Especially notable publicity was that given the Museum by the *Chicago Sunday Tribune* on the color page of its photographic section. On March 11 the entire front color page was devoted to reproducing three of the striking habitat groups in the exhibits of the Department of Zoology. This was followed by a series of color pictures of material in N. W. Harris Public School Extension cases, published on several Sundays during the spring. On the Sunday before Thanksgiving a full page was devoted to a reproduction in colors of the Museum's habitat group of wild turkeys. The Museum hardly extends to the publishers of the *Tribune*, to Mr. John Almsell, Sunday editor, and to Mr. Godfrey Lunzberg, color photographer, its thanks for their kind interest which resulted in giving the Museum the extremely valuable space and effective publicity.

Likewise, grateful recognition is herewith given to the staff departments of the *Chicago Tribune*, also to the *Chicago Daily News*, *Chicago Daily Journal*, *Chicago Evening Post*, *Chicago Herald and Examiner*, *Chicago Evening American*, *Chicago Journal of Commerce*, and to the national and international news agencies, such as the Associated Press, United Press, International News Service, Universal Service, and Reuters Service, for their generous cooperation which has contributed so greatly to the success of the Museum's publicity efforts.

Special publicity was obtained through cooperative arrangements between the Museum and officials of the Centennial Live Stock Exposition.

Indicating the extent of the newspaper publicity received, the records show that an average of nearly 1,600 clippings of articles mentioning the Museum are being received each month. As no complete coverage of even the English language newspapers is available, and certain groups such as foreign language papers are not covered at all by the clipping services, this number represents only a part of the space given the Museum. The highest monthly receipt of clippings was in September, with 2,822. The total number of clippings for the year was 19,105.

**PUBLICITY IN PERIODICALS.**—Many special articles on the Museum and its activities, some prepared at the Museum on the request of editors, and others written by outside writers, usually illustrated with photographs furnished by the Museum, have appeared in general and popular magazines, trade journals, scientific publications, and other periodicals. Among the more important publications in which this material has appeared are *Scientific American*, *Chicago Commerce*, *Popular Mechanics*, *Science*, *Popular Science*, *Americana Annual*, *International Year Book*, *Art and Archaeology*, *Science News Letter*, *Museums Journal* (London), and *American Year Book*.

**ADVERTISING.**—As in past years, the Museum has been fortunate in having a wide variety of advertising media generously placed at its disposal without charge.

Particularly notable was the action of the *Chicago Evening American*, which, in October, had prepared and gave space to a full page advertisement about the Museum, and then at its own expense bought full pages in other Chicago newspapers for republication of this advertisement. Carrying the heading, "Field Museum—where stay-at-home Chicago sees the world," this advertisement attracted a great deal of attention and stirred much public interest. Grateful acknowledgement is hereby made to the *Evening American* and its publisher, Mr. Herman Black.

The Chicago Rapid Transit Company, and associated inter-urban lines, distributed 50,000 Field Museum descriptive folders, and again kindly displayed in Elevated Lines stations a series of colored posters of Museum exhibits. The Chicago, North Shore and Milwaukee Railroad again allotted space throughout the year to Museum exhibits and lectures in its "This Week's Events" posters displayed at all stations between Chicago and Milwaukee.

The Chicago Surface Lines continued its generosity of previous years by printing at its own expense, and displaying in the street cars, colored overhead posters advertising the Museum. The Illinois Central Railroad and the Chicago and North Western Railway displayed at their city and suburban stations placards announcing Field Museum lecture courses. These posters were likewise displayed in Marshall Field and Company's retail shops, and in libraries, schools and other institutions.

From a half page in a page of advertising space was given the Museum in practically all Chicago theatre programs. This is a courtesy which has been continued for several years, and is rendered by the Clyde W. Wiley Advertising Bureau, publishers of *The Stage*. The Chicago Civic Opera Company again generously gave the Museum a two page advertisement in its programs.

The Museum was widely advertised in connection with excursions in Chicago conducted by various railroads, notably the Chicago and North Western Railway. Approximately 125,000 Field Museum excursion tickets were distributed by the Museum and sponsoring agencies, including local transportation companies, practically every railroad and lake steamship line entering the city, and all principal hotels, clubs, travel bureaus and department stores. Supplies of these tickets were furnished each month also to the officers and delegates of the many conventions held in the city.

Through the cooperation of the University of Chicago and Northwestern University, Museum literature was distributed to thousands of students. The house organs for customers and consumers published by the Farmer Bros. Market Food and Company, People's Gas Light and Coke Company, Commonwealth Edison Company, Montgomery Ward and Company, Illinois Bell Telephone Company, Chicago Motor Coach Company, and many other firms, and the advertising sheets of many railroads, also annually have, and have helped to advertise the Museum.

Radio.—Radio broadcasting to local masses continued much in the public interest by Field Museum during 1928. During season which comprised week days of the Chicago Radio Club, Chicago Tribune, Evening American, Evening Post, Journal, Herald and Examiner, and the Chicago Nationalist of Labor. Radio talks on behalf of the Museum were broadcast live by means of the Spring and Summer seasons, which is patronized by a group of local and suburban transportation companies and other public utilities.

NEWSREELS.—Motion pictures also brought Field Museum activities before the public. These included newsreels taken by International Newsreel, Kinograms, *Chicago Daily News*, Pathé and special films taken by the Chicago, South Shore and South Bend Railroad.

PAMPHLETS.—Special publicity was given the work done among school children by the Museum in a pamphlet prepared by the Division of Public Relations entitled "Field Museum and the Child," in which the activities of the N. W. Harris Public School Extension Department and the James Nelson and Anna Louise Raymond Public School and Children's Lecture Division are outlined. This pamphlet was widely distributed among school officials, principals, teachers, Members of the Museum, and other persons likely to be interested in this subject.

The Field Museum folder, "One of the World's Treasure Houses," was revised up to date and a new edition published, and a large amount of general editorial work was done by the Division of Public Relations.

#### DIVISION OF PRINTING

During 1928 the output of the Division of Printing has again greatly exceeded that of previous years. This is especially true of exhibition labels, for which a special need arose in order that certain halls on the ground floor with anthropological exhibits could be opened to the public.

No noteworthy change or increase in the equipment was made during the year, but in order that the composition on publications could be advanced in a satisfactory manner, a monotype operator for a night shift was added to the staff on July 1. As a result of this addition excellent progress was made during the past six months on the composition work for regular publications, guides, leaflets, childrens' stories, and other jobs requiring an unusual amount of typesetting.

The following publications were printed and bound during the period under review:

	Number of copies
Publication 246—Contents and Index to Volume XIV.....	1,000
Publication 247—A New Crocodile from New Guinea.....	1,021
Publication 248—Annual Report of the Director for 1927.....	3,800
Publication 249—The Marine Fishes of Panama.....	1,500
Publication 250—A New Genus of Aquatic Rodents.....	1,017
Publication 251—Reptiles Collected in Salvador.....	1,017
Publication 252—Notes on South American Caimans.....	1,010
Publication 253—The Prehistory of Aviation.....	1,523



ROENTGENOLOGY.—Considerable publicity was given to the X-ray work of the Museum in 1928. As a result, international attention has been attracted to the findings made by the Division of Roentgenology.

Much careful experimentation has been devoted toward perfecting a technique that will adapt itself to the penetration of the unusual substances that have been submitted to the X-ray laboratory for study. In mummy packages, for instance, to obtain a shadow of the skeletal structure of the body, the bandages and wrappings, and often even the coffin must be penetrated also. The anthropological specimens that have been X-rayed are all mummies contained in their original wrappings, and development of these films brought many surprises.

In the mummy of a child, for instance, it was found that the arms had been removed and the legs broken, presumably to make the body fit a coffin too small for it. From all outward appearances this package seemed to contain the entire body of the child. The original wrappings have never been disturbed, and this mutilated condition was not even suspected until the X-ray film was made.

X-ray examination of another mummy, that of an adult Egyptian disclosed the fact that the arms and torso were missing. The head was suspended to the pelvic region by a board, and the cavity normally occupied by the missing parts was filled with some radiolucent material that casts almost no shadow on the X-ray film.

Pathological conditions, identical with present-day ills such as arthritis, genu valgum, scoliosis, *et cetera*, are clearly defined on some of the films. These findings have been corroborated by Dr. Cora A. Matthews of the Cook County Hospital.

Life-size prints of the above described X-ray films have been placed on exhibition in Hall J. These prints are in close proximity to the original mummies so that interesting comparisons can be made.

PHOTOGRAVURE.—Following is a list of the photogravure illustrations and postal cards completed during the year 1928:

	Number of prints
Publication illustrations.....	133,500
Leaflet illustrations.....	70,000
Design Series illustrations.....	63,000
Guide covers.....	20,000
African Hall Guide illustrations.....	52,500
Posters.....	1,900
Postal cards in series.....	195,000
Postal cards (general).....	96,000
Special (membership headings).....	1,375
Total.....	633,275



Small Stegosaurus, reconstructed by J. B. Hatcher, 1891, from the bones of the same species.

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## ATTENDANCE STATISTICS AND DOOR RECEIPTS

FROM JANUARY 1, 1928 TO DECEMBER 31, 1928

Total attendance .....		1,023,627
Paid attendance .....	137,607	
Free admissions on pay days:		
Students .....	11,031	
School children .....	50,525	
Teachers .....	2,677	
Members .....	1,295	
Admissions on free days:		
Thursdays (52) .....	126,579	
Saturdays (52) .....	238,561	
Sundays (53) .....	455,352	
<hr/>		
Highest attendance on any day (August 19, 1928) .....	20,894	
Lowest attendance on any day (December 21, 1928) .....	146	
Highest paid attendance (September 3, 1928) .....	9,000	
Average daily admissions (366 days) .....	2,796	
Average paid admissions (209 days) .....	658	
Number of guides sold .....	8,282	
Number of articles checked .....	19,428	
Number of picture postal cards sold .....	132,877	
Sales of publications, leaflets, handbooks and photographs . .	\$4,087.42	

## GENERAL FUND

## STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

AT DECEMBER 31, 1928

Balance December 31, 1927..... \$ 11,000.00

## Receipts

Income—Chickens, General Maintenance and Farm Income	\$ 1,175.00	
South Park Commissioners	212,500.00	
County receipts	25,000.00	
Donations	25,000.00	
Contributions	275,000.00	
Permittee fund and interest	697,270.00	
Bank loans	25,000.00	1,770,000.00
		<u>\$2,050,770.00</u>

## Disbursements

Operating expenses	\$ 200,000.00	
Expenditures	61,250.00	
Conventions purchased	25,000.00	
Furniture and fixtures	25,000.00	
Securities purchased	200,000.00	
Amounts in contingent gifts	25,000.00	
Additions to building and equipment	44,000.00	
Bank loan paid	25,000.00	
	<u>\$1,770,000.00</u>	
Transferred to Mining Fund	25,000.00	1,795,000.00
Balance December 31, 1928		<u>\$ 25,770.00</u>

## THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

## STATEMENT OF INCOME AND EXPENSES FOR THE YEAR 1928

Interest and dividends on investments .....	\$ 20,345.98
Operating expenses .....	20,809.76
Excess of expenses over income .....	\$ 463.78

## STANLEY FIELD PLANT REPRODUCTION FUND

## STATEMENT OF INCOME AND EXPENSES FOR THE YEAR 1928

Balance, December 31, 1927 .....	\$ 186.14
Contributions by Stanley Field during 1928 .....	17,322.00
	\$ 17,508.14
Operating expenses—1928 .....	16,857.66
Balance, December 31, 1928 .....	\$ 650.48



FERGUSON, FRED D., Manito, Illinois.

- 12 archaeological objects: 10 decorated pottery sherds, 1 clay tobacco-pipe, 1 lot of detached bones—Mound seven miles from Manito, Illinois (gift).

FIELD, HENRY, Chicago.

- 7 archaeological objects: 5 tubular beads, 1 cylinder seal, and 1 animal carving—Jemdet Nasr, Mesopotamia (gift).

FIELD (WALTER) COMPANY, Chicago.

- 1 piece of decorated tapa—Samoa (gift).

FIELD MUSEUM OF NATURAL HISTORY.

Collected by Ralph Linton, leader of Captain Marshall Field Expedition to Madagascar:

- 1,527 objects: wood carvings, brass castings, iron lamps, costumes, blankets—Bara, Tanala, Betsileo, and Imerina tribes, Madagascar.

- 130 objects of basketry, wood carvings, fur cloaks, weapons, beadwork—mostly Basuto, South Rhodesia, South Africa.

Collected by Dr. Neville Jones, Captain Marshall Field Expedition to Madagascar:

- About 100 paleolithic type specimens—South Africa.

Collected by E. S. Riggs, Captain Marshall Field Paleontological Expedition to Argentina and Bolivia, 1926-27:

- 2 prehistoric potsherds—Tarija, East Bolivia, South America.

Collected by J. Eric Thompson, leader of Captain Marshall Field First Archaeological Expedition to British Honduras:

- About 130 archaeological objects of pottery, stone, jade, and shell—Maya, British Honduras, and Honduras.

Collected by W. D. Strong, anthropologist of Rawson-MacMillan Subarctic Expedition of Field Museum, 1927-28:

- About 849 archaeological and ethnological objects: stone, bone, and household implements, soapstone

and ivory carvings, clothing, weapons, and ceremonial material; 34 skeletal remains—Eskimo and Naskapi, Labrador and Baffin Land.

Collected by Henry Field, leader of Captain Marshall Field First and Second Archaeological Expeditions to the North Arabian Desert:

- About 15,021 objects of prehistoric flint implements and flakes, stones bearing tribal marks, and one inscribed door-lintel—North Arabia.

Collected by Henry Field, leader of Captain Marshall Field Archaeological Expedition to Western Europe:

- About 10,100 objects of prehistoric flint and bone implements, casts from French National Collection, and casts of prehistoric human remains—France, Germany, and England.

Purchases:

- 3 objects of beadwork: 1 beaded blanket stripe, 1 pair of beaded moccasins, and 1 pipe-bag beaded with quilled fringe—Plains Indians, Dakota, from Mrs. Laura F. Stewart, collector.

- 1 copper hoe of native "Indian" copper—Arizona, from P. S. Bentz.

- 17 ethnological objects: articles of clothing, household utensils, and snowshoes — Penobscot Indians, Maine, from Dr. Frank G. Speck, collector.

- 1 pair of emu feather slippers—aborigines, West Australia, from J. F. Connelly, collector.

- 30 ethnological objects: clothing, knife, Jew's harp, tobacco-pipes, drinking-cup, and spoon—Taiyal, Paiwan, Bunun, Ami, and Tsou tribes, Formosa, from Gordon T. Bowles, collector.

- 1 old piece of decorated tapa—Hawaii, from Mrs. Emily Wallace.

FIELD MUSEUM—OXFORD UNIVERSITY JOINT EXPEDITION (CAPTAIN MARSHALL FIELD FUND).

- About 24 fragmentary skulls and about 1,500 archaeological ob-



- ALEXANDER, MRS. H. H., Avalon, California.  
1 herbarium specimen (gift).
- ARCHERS COMPANY, Pinehurst, North Carolina.  
3 wood specimens and 1 herbarium specimen of *Taxus* and *Torreya* (exchange).
- ATWOOD, CHARLES E., Chicago.  
29 samples of tea (gift).
- BALL, DR. C. R., Washington, D. C.  
12 herbarium specimens of willows from Minnesota and North Dakota (gift).
- BARREL, GEORGE, Boston.  
1 fruiting specimen of Peruvian mahogany (gift).
- BASNETT, DOUGLAS, Chicago.  
14 hand specimens of woods from Brazil and Chile (gift).
- BAYER, JACOB, LUMBER COMPANY, New York City.  
A black cherry board (gift).
- BELIZE ESTATE AND PRODUCE COMPANY, Belize, British Honduras.  
A mahogany board (gift).
- BENKE, H. C., Chicago.  
521 herbarium specimens, chiefly from Illinois (gift).
- BLETSCHE, W. E., Highland Park, Illinois.  
18 hand samples of tropical woods (gift).
- BOMBAY NATURAL HISTORY SOCIETY, Bombay, India.  
6 samples of vegetable oils (gift).
- BREMER, MISS MARY, Crown Point, Indiana.  
9 herbarium specimens from Indiana (gift).
- BRIGNOLES BOTANIC STATION, Brignoles, France.  
19 herbarium specimens and packets of seeds (gift).
- BRITISH FOREST SERVICE, Belize, British Honduras.  
1 specimen of the inflorescence of a palm (gift).
- BUREAU OF STANDARDS, Washington, D. C.  
9 photo-micrographs of fiber (gift).
- CALDERON, DR. SALVADOR, Direccion General de Agricultura, San Salvador, Salvador.  
106 herbarium specimens from Salvador (gift).
- CALIFORNIA ACADEMY OF SCIENCES, San Francisco.  
415 herbarium specimens, chiefly from Lower California (exchange).
- CLEVELAND MUSEUM OF NATURAL HISTORY, Cleveland, Ohio.  
18 herbarium specimens from Ohio (gift).
- CLYNES, M. R. and N. E. BECKER, Chicago.  
1 wood specimen of Osage orange (gift).
- COLTON, MRS. THERON, Chicago.  
1 herbarium specimen from Illinois (gift).
- COMMERCIAL SOLVENTS CORPORATION, Terre Haute, Indiana.  
10 samples of corn products (gift).
- CONSERVATOR OF FORESTS, Rangoon, Burma.  
176 wood specimens (gift).
- CRANE AND COMPANY, Dalton, Massachusetts.  
5 specimens of material employed in paper manufacture (gift).
- DAHLGREN, DR. B. E., Chicago.  
A branch of Honduras mahogany and a collection of aroid and other tubers from Trinidad (gift).
- DAHLGREN, MRS. B. E., Chicago.  
1 herbarium specimen from California (gift).
- DEAGAN, J. C., INC., Chicago.  
A board of Honduras rosewood (gift).
- DIRECCION GENERAL DE AGRICULTURA, Guatemala City, Guatemala.  
28 herbarium specimens from Guatemala (gift).



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**FARWELL, OLIVER A.** Tucson.  
1 specimen of each of various cacti  
gift.

**FEDERAL BUREAU OF L. LAND  
BIRDS, WASHINGTON.**  
1 herbarium specimen gift.

**FIELD MUSEUM OF NATURAL  
HISTORY.**

1 collected by G. Dwyer, Chicago  
1 group, Missouri, Ford, August-  
November, 1914.

1 set herbarium specimens, 20  
specimens.

1 collected by W. H. Jones and A. C.  
Smith, Kansas, July-August, 1914.  
1 set, Kansas, July-August, 1914.  
1 set, Kansas, July-August, 1914.

1 set herbarium specimens.  
Transferred from the Department of  
Chicago.

1 specimen of each of the plants  
from the

Chicago of Photographs.  
10 photographs of some specimens  
of plants.

**Fieldwork.**  
1 set herbarium specimens, 10  
specimens of each specimen of  
plants, 1 photograph of each  
specimen of plants, 1  
specimen of plants.

1 set herbarium specimens, 10  
specimens of each specimen of  
plants, 1 photograph of each  
specimen of plants, 1  
specimen of plants.

**GARRETT, PROCTOR, A. C.** Salt  
Lake City, Utah.

121 herbarium specimens from Utah  
gift.

**GRAY HERBARIUM OF HARVARD  
UNIVERSITY, Cambridge,  
Massachusetts.**

618 herbarium specimens, mostly  
from Europe, 1 photograph per  
specimen.

**HAIGHT, ORLAND, Napton, Fla.**

44 herbarium specimens from Florida  
gift.

**HAWAIIAN BATHORY, LEO  
PETER, LEO, Honolulu, Hawaii.**

Specimens of two wood and a flower  
specimen gift.

**HAYNE, MISS NELLIE, Oak Park,  
Illinois.**

1 herbarium specimen from Illinois  
and Indiana gift.

**HILLMATH, L. C. A., Chicago.**

1 herbarium specimen of each  
gift.

**HONOLULU, CHARLES F., Honolulu,  
Hawaii.**

1 herbarium specimen, mostly  
from Hawaii gift.

**HOLLAND, PHILIP, Washington,  
D. C., D. C., D. C.**

10 herbarium specimens from Florida  
gift.

**HOLLAND, JOHN, and Capt.  
COMBES, East Walling,  
Hampshire.**

1 specimen of each and with specimens  
gift.

**HUNGARIAN NATIONAL MUSEUM,  
BUDAPEST, Hungary.**

10 herbarium specimens from Hungary  
gift.

**JACOB, MISS M. E., Colorado,  
Hawaii.**

1 herbarium specimen from Hawaii  
gift.

**JARVIS, DR. J. J., Chicago, Ill.,  
Chicago, Ill., D. C., D. C.**

10 herbarium specimens from British  
Hawaii gift.

**JENNY, PROCTOR, I. A.,  
Hawaii, Hawaii.**

10 herbarium specimens, and photo-  
graphs from the same place.

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Hawaii, Hawaii.**

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graphs from the same place.

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Hawaii, Hawaii.**

10 herbarium specimens, and photo-  
graphs from the same place.

- MARTINEZ, PROFESSOR MAXIMINO, Mexico City, Mexico.  
1 herbarium specimen from Mexico (gift).
- NEW YORK BOTANICAL GARDEN, New York City.  
6 herbarium specimens (exchange).
- NEW YORK COCOA EXCHANGE, New York City.  
8 samples of cacao (gift).
- PEARSON, G. H., AND SON HARDWOOD COMPANY, INC., New York City.  
29 wood specimens (gift).
- PHILLIPS, O. F., Chairman, Board of Review, Chicago.  
A tray of barley standards (gift).
- PLATANIA, PROFESSOR GAETANO, Catania, Italy.  
3 citrus boxes (gift).
- PURPUS, DR. C. A., Zacuapam, Mexico.  
72 herbarium specimens from Mexico (gift).
- REKO, DR. BLAS P., Indé, Durango, Mexico.  
42 herbarium specimens from Mexico (gift).
- RIDGWAY, ROBERT, Olney, Illinois.  
332 herbarium specimens from Illinois (gift).
- ROYAL BOTANIC GARDENS, Kew, England.  
647 herbarium specimens from Colombia (exchange).
- RUTH, PROFESSOR ALBERT, Fort Worth, Texas.  
34 herbarium specimens from Texas (gift).
- ST. JOHN, DR. HAROLD, Pullman, Washington.  
1 herbarium specimen (gift).
- SHERFF, DR. EARL E., Chicago.  
85 herbarium specimens (gift).
- SMITH, HURON H., Milwaukee, Wisconsin.  
1 herbarium specimen (gift).
- STEVENSON, NEIL S., Belize, British Honduras.  
8 specimens of palms from British Honduras (gift).
- STORK, PROFESSOR H. E., Northfield, Minnesota.  
1 herbarium specimen from Costa Rica (gift).
- SUTHERLAND, THOMAS G., Chicago.  
A police baton made from lignum vitae (gift).
- TEHON, L. R., Urbana, Illinois.  
103 herbarium specimens from Illinois (gift).
- UNITED STATES DEPARTMENT OF AGRICULTURE, Bureau of Plant Industry, Washington, D. C.  
9 herbarium specimens (exchange).
- UNITED STATES NATIONAL MUSEUM, Washington, D.C.  
8,805 herbarium specimens (exchange).
- UNIVERSITETETS BOTANISKE MUSEUM, Copenhagen, Denmark.  
276 herbarium specimens from tropical America (exchange).
- WARREN, S. D., COMPANY, Boston.  
8 specimens of material used in paper making (gift).
- WIELAND, PROFESSOR G. R., New Haven, Connecticut.  
1 ground section of *Cycadeoides* (gift).
- WITTE MEMORIAL MUSEUM, San Antonio, Texas.  
465 herbarium specimens from Texas (gift).
- YALE SCHOOL OF FORESTRY, THROUGH PROFESSOR SAMUEL J. RECORD, New Haven, Connecticut.  
371 herbarium specimens from tropical America (gift); a log of caciue bloodwood (gift); 1,501 wood specimens (exchange); a bag made of pita floja, latex of the Guatemala cow tree, seeds of *Astrocaryum*, wood specimen of pink ivory (gift).

WASH. STATE UNIV., PULLMAN,  
WASH. 99164-5000, New  
Hampshire, U.S.A.  
E-mail: j.m.wright@wsu.edu

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James Smith Collection

## DEPARTMENT OF COMMERCE

- 7. experiment of peat. Activated. 100 gms. gift.
- 8. synthetic vegetation. Activated. 100 gms. gift.
- 9. synthetic soil, changed to lignite. Activated. 100 gms. gift.
- 10. photographs of peat bog. Activated. 100 gms. gift.

AMERICAN MUSEUM OF NATL.  
HIST. HISTORY, New York City  
A detailed bibliography of Thomas  
Jefferson (1743-1826)

AMERICAN COLLEGE OF EDUCATION, 1900-1901  
 1000 UNIVERSITY AVENUE, CHICAGO, ILL.

**INCUBATION PERIOD.**—Average  
of Massachusetts, United States, 1901.  
Length of Incubation Period of Massachusetts  
1896-1900.

HOWE, E. C., *Building Time*  
3 volumes. Princeton: Princeton  
Univ. Press, 1965.

2. *eye-there* (not visible) (during call)

[illegible]

Department of Health, Education and Welfare  
Public Health Service  
Washington, D.C. 20462

1. *Journal of the American Medical Association*, 1964; 191: 100-101.  
 2. *Journal of the American Medical Association*, 1964; 191: 100-101.  
 3. *Journal of the American Medical Association*, 1964; 191: 100-101.  
 4. *Journal of the American Medical Association*, 1964; 191: 100-101.

[illegible]

1941, 1942, 1943, 1944, 1945, 1946, 1947, 1948, 1949, 1950, 1951, 1952, 1953, 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, 1962, 1963, 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 26

1 specimen, small, non-hermaphrodite. (Smith and Smith)

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20 specimens mounted - various ac-  
cording to category.

[illegible]

1. *Information to your Agent*  
 2. *Information to your Agent*

FIELD MUSEUM OF NATURAL HISTORY  
CHICAGO, ILL.  
Collected by (Name), (Number)  
1. (Scientific name) (No.) (Date)  
(Locality)  
Collected by the (Name) (Number)  
Section of (Department) (Number)  
(Locality) (Number) and (Date)  
(Number) (Number)

- 45 specimens of fragments of shells of eggs of *Protoceratops* and *Struthiolithus*—Mongolia.
- Collected by Captain Marshall Field Paleontological Expedition to Alberta, Canada, 1922:
- 1 trunk of fossil tree — Alberta, Canada.
- Collected by Captain Marshall Field Paleontological Expedition to Argentina and Bolivia, 1922-24:
- 48 specimens fossil invertebrates—Patagonia Beds, Argentina.
- Collected by Captain Marshall Field Second Paleontological Expedition to Argentina and Bolivia, 1926-1927:
- 144 specimens fossil vertebrates and invertebrates — Tarija, Bolivia and Province of Buenos Aires, Argentina.
- 171 specimens fossil vertebrates—Catamarca, Argentina.
- 21 specimens fossil Devonian invertebrates—Austral fauna of Bolivia.
- Collected by H. W. Nichols:
- 2 specimens soils—Antioch, Illinois.
- Purchases:
- 1 iron meteorite—Gladstone, Australia.
- 1 iron meteorite—Houck, Arizona.
- Section of iron meteorite—Duchesne County, Utah.
- Skeleton of *Teleosaurus* in matrix—Holzmaden, Württemberg, Germany.
- 1 specimen modern crinoid—Sagami Bay, Japan.
- 2 specimens fossil echinoids—Pontotoc, Mississippi.
- FIELD, MRS. STANLEY, Chicago.
- 1 specimen claw of fossil sloth—Sarasota, Florida (gift).
- GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago.
- 9 specimens modern plants and animals—various localities (gift).
- GLENDINNING, R. J., Salt Lake City, Utah.
- 1 specimen gilsonite—Utah (gift).
- GOLDBLATT, EDWARD, Chicago.
- 1 specimen fossil fish—Fossil, Wyoming (gift).
- GRONEMANN, C. F., Elgin, Illinois.
- 1 specimen peat from sphagnum—Gilbert's, Illinois (gift).
- HALVORSEN, E. E., Templeton, California.
- 2 specimens fossil pelecypods—California (gift).
- 3 specimens fossil oysters—California (gift).
- 1 specimen petrified wood—California (gift).
- HARRISON, C. M., Amory, Mississippi.
- 16 specimens bentonite and associated rock—Amory, Mississippi (gift).
- HESTER, J. P., Flagstaff, Arizona.
- 1 specimen fossil amphibian footprints—Cameron, Arizona (gift).
- 15 photographs (gift).
- HIGGINSON, MRS. CHARLES M., Kenilworth, Illinois.
- 3,240 specimens minerals—various localities (gift).
- HOLDERNESS, WILLIAM T., Chicago.
- 1 specimen marcasite concretion—southern Illinois (gift).
- ILLINOIS STATE MUSEUM, Springfield, Illinois.
- Portion with crust of the 46-pound individual of the Tilden meteorite, and a cast of the entire individual—Tilden, Illinois (gift).
- KINSER, B. M., Port Stanton, Canada.
- 21 specimens Ordovician fossils—Port Stanton, Canada (gift).
- LANG, JOHN, Jacksonville, Texas.
- 1 limonite concretion—Jacksonville, Texas (gift).
- LAW, D. H., Dixon, Illinois.
- 1 specimen of root of fossil tree—Elsie, Kentucky (gift).
- LAYBOURNE, E. G., Chicago.
- 3 specimens fossil gastropods—Colorado (gift).
- 1 specimen fossil pelecypod—Colorado (gift).

## COLLETT, MISS Winona, Chicago

- 1 specimen (leaf) *Juniperus* sp.  
— *Juniperus*, Illinois, Chicago, 1948.

## CORTIS, DAVID, Madison, Wisconsin

- 1 specimen (leaf) *Juniperus* sp.  
— *Juniperus*, Wisconsin, 1948.

## MAGILL, DAVID, Madison, Wisconsin

- 1 specimen (leaf) *Juniperus* sp.  
— *Juniperus*, Wisconsin, 1948.

## MORAN, DAVID, Madison, Wisconsin

- 1 specimen (leaf) *Juniperus* sp.  
— *Juniperus*, Wisconsin, 1948.

## MORRIS, J. M., Madison, Wisconsin

- 1 specimen (leaf) *Juniperus* sp.  
— *Juniperus*, Wisconsin, 1948.

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— *Juniperus*, Wisconsin, 1948.

## SEKERA, JOHN, Chicago.

- 1 specimen chalcedony — South Dakota (gift).

## SHANAHAN, W. F., Chicago.

- 1 specimen cup coral—Decatur, Illinois (gift).

## SIEGFRIEDT, DR. T. C. F., Red Lodge, Montana.

- 2 specimens zonolite — Montana (gift).

## SOMOGYI, JULIUS, Chicago.

- 1 specimen *Lepidodendron*—(gift).

## SOSNOVEC, V., St. Louis, Missouri.

- 8 specimens minerals—St. Louis, Missouri (gift).
- 7 specimens concretions—St. Louis, Missouri (gift).

## STATE GEOLOGICAL SURVEY, Urbana, Illinois.

- 3 specimens oil sands—Lawrenceville, Illinois (gift).

## THOMAS, MRS. THEODORE, Cambridge, Massachusetts.

- 1 specimen polished labradorite—Labrador (gift).

## TRUESDELL, DR. G. W., Taylor Falls, Minnesota.

- 1 specimen conglomerate containing *Lingula*—Taylor Falls, Minnesota (gift).

## UNITED STATES GEOLOGICAL SURVEY, Washington, D. C.

- 11 specimens potash salts—Texas and New Mexico (gift).

## UNIVERSITY OF CHICAGO, Chicago.

- Skull and jaws of *Poebrotherium wilsoni*—Wyoming (exchange).
- Skeleton of *Oreodon culbertsoni*—Nebraska (exchange).

## VAUGHAN, DR. R. V., Avalon, California.

- 1 specimen calcareous tufa—Catalina Island, California (gift).

## VEDDER, MRS. W. J., Chicago.

- 1 specimen fossil ammonite—New Mexico (gift).

## WEIS, MISS LILLIAN MARY, Chicago.

- 1 specimen sphalerite and calcite—Cumberland, England (gift).
- 1 specimen silver and copper—Lake Superior (gift).

## WIEDENIG, JOSEPH A., Chicago.

- 1 specimen covellite—Upper Two Medicines, Montana (gift).
- 1 specimen concretion—Upper Two Medicines, Montana (gift).

## WOOLLEY, S. W., Osborne, Kansas.

- 3 specimens invertebrate fossils—Osborne, Kansas (gift).

## DEPARTMENT OF ZOOLOGY

## ANDERSON, A. N. P., Los Angeles, California.

- 1 rattlesnake skin—Brownsville, Texas (gift).

## APPLEBAUM, A. A., Chicago.

- 1 tarantula—Honduras(?) (gift).

## BACKES, PETER, Wheaton, Illinois.

- 1 barn owl—(gift).

## BERTONI, A. W., Asuncion, Paraguay.

- 1 flycatcher—Puerto Bertoni, Paraguay (gift).

## BORDEN, JOHN, Chicago.

- 4 walrus tusks—Alaska (gift).
- 2 ribbon seal skins, 1 skull—King Island, Alaska (gift).

## BOOTH FISHERIES COMPANY, Chicago.

- 1 inconnu—Alaska (gift).

## BRODKORB, PIERCE, Evanston, Illinois.

- 132 birdskins—various foreign localities (exchange).

## BUTTLES, MRS. B. E., Chicago.

- 1 albino bluejay—Chicago (gift).

## CARLSON, MRS. MARIA L., Mount Greenwood, Illinois.

- 1 short-eared owl—Mount Greenwood, Illinois(?) (gift).

## CAUBLE, F. B., Greenfield, Indiana.

- 1 turtle, 1 moth caterpillar—Orange County, Indiana (gift).

## CHICAGO ACADEMY OF

Collected by W. J. Gribard.

2 mammals—Banding, Pennsylvania.

COLTON, M. M., Assistant, Ohio.

Collected by Dr. A. L. Knauber  
Capt. Marshall Ford, Fort  
Jefferson, Mississippi to  
Ford.

1 sp.—Antennae, Ohio gift.

1 mammal skull—Carate, Valley,  
Texas.

CONOVER, H. B., Chicago.

Collected by A. E. Lewis, Depart-  
ment of Anthropology.1 mammal skull—British West  
Indies.1 wood duck—Wood Lake, Illinois  
gift.Collected by Capt. Frederick Fran-  
cis, Marshall Ford, Banding  
Regiment.4 specimens, Gray, South Institute,  
Massachusetts gift.2 specimens, Texas, 1 spec. Water  
Cress, Ford.

FOE, JAMES, Chicago.

Collected by C. F. Jackson, Capt.  
Marshall Ford.

1 bird, Mexico—Camfield, Illinois.

1 beetle—Chicago gift.

FOOTMAN, COLONEL M. L., Fort  
Bliss, Houston, Texas.Collected by C. F. Jackson, M. A.  
Bliss and Ford, Water Cress,  
Ford gift.

5 mammals—Fort Bliss, Texas gift.

FOUR, W. H. D., Downer's Grove,  
Illinois.

12 mammals—Fort Bliss, Texas.

1 water snake—Downer's Grove,  
Illinois gift.FOUR, DONALD R., Pasadena,  
California.Collected by A. J. Schmidt, Cap-  
tain Marshall Ford, Banding  
Regiment.30 insects, 4 mammals—El Estero,  
California gift.

12 birds—Texas.

FRICK, JOHN T., Chicago.

Collected by B. B. Stanger, Capt.  
Marshall Ford, Banding, Water  
Cress, Banding.

1 water—Chicago gift.

FROST, JOHN, Chicago.

1 water snake—Fort Bliss, Texas  
gift.

1 water—Chicago gift.

FIELD MUSEUM OF NATURAL  
HISTORY.Collected by J. E. Thompson, Cap-  
tain Marshall Ford, Banding  
Regiment.

1 water—Chicago gift.

1 water—Chicago gift.

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## Purchases:

- 3 ducks—Wainwright, Alaska.
  - 1 bird—British Guiana.
  - 1 snake—Gainesville, Florida.
  - 18 lizards, 2 snakes—Haiti and Santo Domingo.
  - 1 mammal skin and skeleton—Madagascar.
  - 1 mounted raccoon—Michigan.
  - 96 birds—South America.
  - 5 snakes, 2 lizards—various localities.
  - 2 birds—Oregon.
- FIELD, STANLEY, Chicago.**
- 1 bronze group, "At Bay," by Carl E. Akeley (gift).
- FORCE, MISS EDITH R., Tulsa, Oklahoma.**
- 9 frogs—Tulsa County, Oklahoma (gift).
- FRANZEN, ALBERT, Chicago.**
- 1 lot salamander eggs—Manitowish, Wisconsin (gift).
  - 1 eel pout—Chicago (gift).
- FRIESSER, JULIUS, Chicago.**
- 1 moth—Chicago (gift).
- GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago.**
- 1 hermit crab—Key West, Florida (exchange).
  - 1 salamander—Imboden, Arkansas (gift).
  - 1 snake—Florida (gift).
- GERHARD, W. J., Chicago.**
- 2,128 insects—northern Indiana and northern Illinois (gift).
- GILLETTE, WILLIAM J., San Diego, California.**
- 1 bird—San Diego, California (gift).
- GRANT, C. P., Chicago.**
- 10 bird lice—Chicago (gift).
- GRONEMANN, CARL F., Elgin, Illinois.**
- 9 salamanders, 5 lizards, 4 snakes—Hanover, Germany (gift).
- GUERET, E. N., Chicago.**
- 3 flies—Chicago (gift).
- HACKNEY, G. W, Gwelo, Rhodesia.**
- 10 mammal skulls and horns—Rhodesia (gift).
- HAGER, MISS RUTH, West Palm Beach, Florida.**
- 1 lizard—Palm Beach, Florida (gift).
- HARLAN, MAYNARD, London Mills, Illinois.**
- 1 woodchuck skull—London Mills, Illinois (gift).
- HARRIS, H. M., Ames, Iowa.**
- 9 bugs — various localities (exchange).
- HELLMAYR, DR. AND MRS. C. E., Chicago.**
- 9 beetles, 19 butterflies, 7 moths—Alberta, Canada (gift).
- HINE, ASHLEY, Chicago.**
- 1 hawk owl—Edmonton, Alberta (gift).
- ILLINOIS DEPARTMENT OF CONSERVATION, Chicago.**
- 1 least weasel—Waukegan, Illinois (gift).
- KLAUBER, L. M., San Diego, California.**
- 4 snakes—San Diego County, California (gift).
- KREBS, C. L., Chicago.**
- 1 spider—Central America (gift).
- LASCH, EMIL, McHenry, Illinois.**
- 1 double-crested cormorant, 6 pheasant eggs—McHenry, Illinois (gift).
- LAYBOURNE, E. G., Chicago.**
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- LETL, FRANK, Chicago.**
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  - 1 butterfly—Chicago (gift).
  - 2 fishes—Alto Pass, Illinois (gift).
- LILJEBLAD, E., Chicago.**
- 1 moth—Chicago (gift).
- LYON, DR. M. W., South Bend, Indiana.**
- 1 coyote—North Liberty, Indiana (gift).



Illustration of the costume of the  
people of the island of  
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Raymond Fund: 432 lantern slides.

Purchase:

13 lantern slides on "Roman  
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163 prints of scenes and types of  
Naga Hills, Assam, India.

6 reels motion picture film on Naga  
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ELSBERG, H. A., New York City.

22 photographs of Peruvian fabrics  
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Made by Division of Photography:  
18,247 prints, 4,463 negatives,  
1,546 lantern slides, 333 enlarge-  
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Developed for expeditions: 724  
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Made by H. W. Nichols: 36 negatives  
of scenery around oil well for  
modeling purposes.

Made by Julius Friesser: 46 nega-  
tives of animals.

Made by William D. Strong: 642  
negatives of natives, general  
views, etc.

Made by J. Eric Thompson:

79 negatives of natives, landscapes,  
etc., in British Honduras.

Made by Commander Donald B.  
MacMillan:

1 reel motion picture film on the  
Naskapi Indians.

Made by Henry Field:

642 negatives of natives, landscapes,  
etc., taken at Kish, Mesopotamia.

139 negatives of natives, landscapes,  
etc., taken in Northern Arabia.

328 negatives of European natives,  
landscapes, etc.

Purchases:

6000 feet motion picture film taken  
in Kish, Mesopotamia.

4000 feet motion picture film taken  
in Northern Arabia.

19 prints from a Persian manuscript  
on polo, in Public Library,  
Leningrad.

FRIEDENWALD, DR. HERBERT,  
Washington, D. C.

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wayo.

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Provincial Museum, Victoria, Brit-  
ish Columbia.

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relle, Paris.

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Société Dauphinoise d'Ethnologie et  
d'Anthropologie, Grenoble.

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relles, Reims.

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London School of Economics and Political Science, London.

Manchester Literary and Philosophical Society, Manchester.

Manchester Museum, Manchester.

Marine Biological Association, Plymouth.

National Indian Association, London.

National Museum of Wales, Cardiff.

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Royal Geographical Society, London.

Royal Horticultural Society, London.

Royal Society, London.

Royal Society of Arts, London.

Royal Society of Edinburgh, Edinburgh.

School of Oriental Studies, London.

South London Entomological and Natural History Society, London.

Speleological Society, Bristol.

Tring Zoological Museum, Tring.

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Archaeological Survey, Madras.

Asiatic Society of Bengal, Calcutta.

Bihar and Orissa Research Society, Patna.

Botanical Survey, Calcutta.

Department of Agriculture, Bombay.

Department of Agriculture, Madras.

Department of Agriculture, Poona.

Department of Agriculture, Pusa.

Geological Survey, Calcutta.

Government Cinchona Plantations, Calcutta.

Government of India, Calcutta.

Government Museum, Madras.

Hyderabad Archaeological Society, Hyderabad.

Indian Museum, Calcutta.

Journal of Indian Botany, Calcutta.

Mining and Geological Institute of India, Calcutta.

Royal Botanic Garden, Calcutta.

University of Calcutta, Calcutta.

Zoological Survey of India, Calcutta.

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Royal Irish Academy, Dublin.

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## MEXICO.

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 Museo Nacional de Antropología, Historia y Etnografía, Mexico City.  
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 Government Museum, Dunedin.  
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 Department of Mines, Geological Survey, Wellington.  
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 Norsk Geologisk Forening, Oslo.  
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 Zoologisk Museum, Oslo.

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 Botanical Garden, Leningrad.  
 Musée d'Anthropologie, Leningrad.  
 Musée Géologique de Minéralogie  
 Pierre le Grand, Leningrad.  
 Poltava's State Museum of the  
 Name of Korolenko, Poltava.  
 Russian Zoological Journal, Moscow.  
 Société des Amis des Sciences  
 Naturelles, d'Anthropologie et  
 d'Ethnographie, Moscow.  
 Société Ouralienne d'Amis des Sciences  
 Naturelles, Ekaterinberg.

## SPAIN:

Associació Catalana d'Antropologia  
 Etnologia i Prehistoria, Barcelona.  
 Institució Catalana d'Historia Natural,  
 Barcelona.  
 Junta para Ampliación de Estudios  
 e Investigaciones Científicas, Madrid.  
 Museo de Ciencias Naturales, Madrid.  
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Minnesota Geological Survey, Minneapolis.  
Minnesota Historical Society, St. Paul.  
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Mississippi Plant Board, Agricultural College.

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Bureau of Geology and Mines, Rolla.  
City Art Museum, St. Louis.  
Missouri Botanic Garden, St. Louis.  
Missouri Historical Society, Columbia.



## OKLAHOMA:

Oklahoma Academy of Science, Norman.  
 Oklahoma Geological Survey, Norman.  
 University of Oklahoma, Norman.

## OREGON:

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## PENNSYLVANIA:

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 Pennsylvania Museum and School of Industrial Art, Philadelphia.  
 Philadelphia College of Pharmacy, Philadelphia.  
 Philadelphia Commercial Museum, Philadelphia.  
 Reading Public Museum and Art Gallery, Reading.  
 Sullivant Moss Society, Pittsburgh.  
 University of Pennsylvania, Philadelphia.  
 University of Pennsylvania, Museum, Philadelphia.  
 Wagner Free Institute of Science, Philadelphia.  
 Wistar Institute of Anatomy and Biology, Philadelphia.

## PHILIPPINE ISLANDS:

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 Bureau of Science, Manila.  
 Department of Agriculture and Natural Resources, Manila.  
 Department of Interior, Manila.

## SOUTH DAKOTA:

State School of Mines, Rapid City.

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 College Station.  
 Baylor University, Waco.  
 Scientific Society, San Antonio.  
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 State Library, Richmond.  
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 Department of Conservation and Development, Division of Geology, Olympia.  
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 Pacific Northwest Bird and Mammal Society, Seattle.  
 Puget Sound Biological Station, Seattle.  
 Washington University, Seattle.  
 Washington University, Historical Society, Seattle.

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WILLIAM H. HINRICHSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

*Whereas*, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A. D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

*Now, therefore*, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

*In Testimony Whereof*, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSEN,  
*Secretary of State.*

[SEAL]

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archæology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Edward E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed)

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McCurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer

Karpman, Henry Michael, 1897-1970, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 84

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For more studies, see *Health and Environmental and Other Factors* (see *Healthcare* 1989).

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NOTES ON THE CONTRIBUTORS

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Portuguese is a manuscript owned by a member of the Portuguese community in the Holy Sepulchre of Jerusalem. The name of the COLLEGIATE MUSEUM was changed to PORTUGUESE MUSEUM. A manuscript in this collection was dated June 18, 1894, in the office of the Secretary of the Holy Sepulchre.

ALL RIGHTS RESERVED

<sup>1</sup>Thompson is a prominent member of a family in the corporate community with the 10th Earl of Arundel. In 1975, the name of the *WILLIAM THOMPSON FUND* in that company was changed to *WILLIAM THOMPSON OF NORTHALL, BARON*. A statement to that effect was filed November 14, 1980, in the office of the Secretary of State for the County.

(1996) 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 8

Parsons is a resident at a nursing home in the town of Haverhill, Mass. He is the president of the Massachusetts chapter of the American Association of University Professors, which he founded in a fight to protect the rights of teachers who should be elected to such positions and not such unelected ones as they are now appointed by the local boards. A committee to this effect was elected when it could be seen that the teachers of some of the schools

## AMENDED BY-LAWS

JANUARY 1929

## ARTICLE I

## MEMBERS

SECTION 1. Members shall be of eleven classes, Corporate Members, Honorary Members, Patrons, Benefactors, Fellows, Life Members, Non-Resident Life Members, Associate Members, Non-Resident Associate Life Members, Sustaining Members, and Annual Members.

SECTION 2. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such person named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of twenty dollars (\$20.00) or more. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SECTION 3. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

SECTION 4. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SECTION 5. Any person contributing or devising the sum of One Hundred Thousand Dollars (\$100,000.00) in cash, or securities, or property to the funds of the Museum, may be elected a Benefactor of the Museum.

SECTION 6. Any person contributing the sum of Five Thousand Dollars (\$5,000.00) in cash or securities to the funds of the Museum, may be elected a Fellow of the Museum, who after being so elected shall have the right in perpetuity to appoint the successor in said Fellowship.

SECTION 7. Any person paying into the treasury the sum of Five Hundred Dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Life Member. Non-Resident Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees.

SECTION 8. Any person paying into the treasury of the Museum the sum of one hundred dollars (\$100.00), at any one time, shall upon the unanimous vote of the Board, become an Associate Member. Associate Members shall be entitled to: tickets admitting member and members of family, including non-resident home guests; all publications of the Museum, if so desired; reserved seats for all lectures and entertainments under the auspices of the Museum, provided reservation is requested in advance; and admission of holder of membership and accompanying party to all special exhibits and Museum functions day or evening. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of Fifty Dollars (\$50.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Associate Life

Members. Non-American American Life Members shall be exempt from all dues, and shall enjoy all the privileges and immunities of the Members that are extended to American Members.

Section 9. Entering Membership is a matter of fact, and no person is to be admitted until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership. The following Membership is a matter of fact, and no person is to be admitted to the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership. The following Membership is a matter of fact, and no person is to be admitted to the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership.

Section 10. Annual Meeting shall consist of such persons as are admitted from time to time by the Board of Trustees as part of its meetings, and who shall give an amount for of ten dollars (\$10.00), payable within thirty days after receipt of receipt and before being admitted to membership. The following Membership is a matter of fact, and no person is to be admitted to the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership. The following Membership is a matter of fact, and no person is to be admitted to the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership.

Section 11. All membership fees, including initiation and annual, shall be payable to the Treasurer of the Society, and shall be used for the use of the Society, and the Board of Trustees may order.

## ARTICLE II

### BOARD OF TRUSTEES

Section 1. The Board of Trustees shall consist of twenty-five members. The Executive Committee of the Board shall be elected by the members of the Society at its annual meeting, and shall hold office during the year. The Executive Committee shall be elected by the members of the Society at its annual meeting, and shall hold office during the year. The Executive Committee shall be elected by the members of the Society at its annual meeting, and shall hold office during the year.

Section 2. Regular meetings of the Board shall be held on the first day of each month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum except for the election of officers or the adoption of the annual budget, when seven Trustees shall constitute a quorum. That may be authorized by the Trustees from time to time, or in a special meeting or in the next regular meeting.

Section 3. The Executive Committee shall be composed of the President and four or more Trustees, and shall be elected by the members of the Society.

## ARTICLE III

### MEMBERSHIP

Section 1. No person shall be admitted to membership in the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership. The following Membership is a matter of fact, and no person is to be admitted to the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership. The following Membership is a matter of fact, and no person is to be admitted to the Society until he has paid to the Board of Trustees in full the fee for his membership, and who shall give an amount for of twenty-five dollars (\$25.00), payable within thirty days after receipt of receipt and before being admitted to membership.

## ARTICLE IV

## OFFICERS

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, the Second Vice-President, and the Third Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the third Monday of January of each year, and shall be called the Annual Meeting.

SECTION 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SECTION 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

## ARTICLE V

## THE TREASURER

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

SECTION 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely The President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SECTION 3. The Treasurer shall give bond in such amount, and with such sureties as shall be approved by the Board of Trustees.

SECTION 4. The Harris Trust & Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

## ARTICLE VI

## THE DIRECTOR

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the Institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SECTION 2. There shall be four scientific Departments of the Museum—Anthropology, Botany, Geology and Zoology; each under the charge of a



to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the expenditures as stated are authorized.

SECTION 8. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SECTION 9. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SECTION 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SECTION 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

## ARTICLE IX

### NOMINATING COMMITTEE

SECTION 1. At the November meeting of the Board each year, a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Auditing Committee, and the Pension Committee, and for three members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

## ARTICLE X

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SECTION 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.



## CORPORATE MEMBERS

ARMOUR, ALLISON V.	KENNEDY, VERNON SHAW
BORDEN, JOHN	KNIGHT, CHARLES R.
BORLAND, MRS. JOHN JAY	KUNZ, GEORGE F.
BYRAM, HARRY E.	LANGDON, PROFESSOR STEPHEN
CHADBOURNE, MRS. EMILY CRANE	McCORMICK, CYRUS H.
CHALMERS, W. J.	MARKHAM, CHARLES H.
CHATFIELD-TAYLOR, H. C.	MITCHELL, WILLIAM H.
CHERRIE, GEORGE K.	MOORE, MRS. WILLIAM H.
COLLINS, ALFRED M.	PAYNE, JOHN BARTON
CONOVER, BOARDMAN	PROBST, EDWARD
CRANE, RICHARD T., JR.	RAWSON, FREDERICK H.
CUMMINGS, MRS. ROBERT F.	ROOSEVELT, KERMIT
CUTTING, C. SUYDAM	ROOSEVELT, THEODORE
DAY, LEE GARNETT	RYERSON, MARTIN A.
EASTMAN, SIDNEY C.	SARGENT, HOMER E.
ELLSWORTH, DUNCAN S.	SIMPSON, JAMES
FIELD, CAPTAIN MARSHALL	SMITH, MRS. GEORGE T.
FIELD, STANLEY	SMITH, SOLOMON A.
GRAHAM, ERNEST R.	SPRAGUE, ALBERT A.
HARRIS, ALBERT W.	STONE, MELVILLE E.
KEEP, CHAUNCEY	STRAWN, SILAS H.
KELLEY, WILLIAM V.	WHITE, HOWARD J.
	WRIGLEY, WILLIAM, JR.

## DECEASED, 1928

BLAIR, WATSON F.  
 BUTLER, EDWARD B.  
 DAVIES, D. C.



- ECKHART, B. A.  
 EDMUNDS, PHILIP S.  
 EWING, CHARLES HULL  
 FARNUM, HENRY W.  
 FARR, MISS SHIRLEY  
 FARRINGTON, DR. OLIVER C.  
 FARWELL, ARTHUR L.  
 FARWELL, FRANCIS C.  
 FARWELL, JOHN V.  
 FARWELL, WALTER  
 FAY, C. N.  
 FELT, DORR E.  
 FENTON, HOWARD W.  
 FERGUSON, LOUIS A.  
 FERRY, MRS. ABBY FARWELL  
 FIELD, JOSEPH NASH, II  
 FIELD, CAPTAIN MARSHALL  
 FIELD, NORMAN  
 FIELD, MRS. NORMAN  
 FIELD, MRS. SARA CARROLL  
 FIELD, STANLEY  
 FLEMING, JOHN C.  
 FORGAN, DAVID R.  
 FYFFE, COLIN C. H.  
 GARDNER, PAUL E.  
 GARDNER, ROBERT A.  
 GARTZ, A. F.  
 GARTZ, A. F., JR.  
 GARY, MRS. JOHN W.  
 GETZ, GEORGE F.  
 GLESSNER, JOHN J.  
 GODDARD, LEROY A.  
 GOODMAN, WILLIAM O.  
 GOODRICH, A. W.  
 GOODSPEED, CHARLES B.  
 GOWING, J. PARKER  
 GRAHAM, ERNEST R.  
 GRIFFITHS, JOHN  
 GRISCOM, CLEMENT A.  
 HACK, FREDERICK C.  
 HAMILL, ALFRED E.  
 HARRIS, ALBERT W.  
 HARRIS, NORMAN W.  
 HASKELL, FREDERICK T.  
 HASTINGS, SAMUEL M.  
 HECHT, FRANK A., JR.  
 HIBBARD, FRANK  
 HILL, LOUIS W.  
 HINDE, THOMAS W.  
 HINKLEY, JAMES OTIS  
 HIPFACH, LOUIS A.  
 HOPKINS, J. M.  
 HOPKINS, L. J.  
 HOROWITZ, L. J.  
 HOYT, N. LANDON  
 HUGHES, THOMAS S.  
 HURLEY, EDWARD N.  
 INSULL, SAMUEL  
 INSULL, SAMUEL, JR.  
 JARNAGIN, WILLIAM N.  
 JELKE, JOHN F.  
 JELKE, JOHN F., JR.  
 JOHNSON, MRS. ELIZABETH AYER  
 JONES, MRS. ARTHUR B.  
 JONES, MISS GWETHALYN  
 JONES, THOMAS D.  
 KEEP, CHAUNCEY  
 KELLER, THEODORE C.  
 KELLEY, MRS. DAPHNE FIELD  
 KELLEY, RUSSELL P.  
 KELLEY, WILLIAM V.  
 KING, CHARLES GARFIELD  
 KING, FRANCIS  
 KING, JAMES G.  
 KIRK, WALTER RADCLIFFE  
 KNICKERBOCKER, CHARLES K.  
 KUPPENHEIMER, LOUIS B.  
 LAMONT, ROBERT P.  
 LANDON, MRS. JESSIE SPALDING  
 (N. R.)  
 LEHMANN, E. J.  
 LEONARD, CLIFFORD M.  
 LEOPOLD, MRS. HAROLD E.  
 LEVY, MRS. DAVID M.  
 LINN, W. R.  
 LOGAN, SPENCER H.  
 LORD, JOHN B.  
 LOWDEN, FRANK O.  
 LYTTON, GEORGE  
 LYTTON, HENRY C.  
 MACDOWELL, CHARLES H.  
 MACVEAGH, FRANKLIN  
 MARK, CLAYTON  
 MARKHAM, CHARLES H.  
 MARSHALL, BENJAMIN H.  
 MARTIN, WILLIAM P., SR.  
 MASON, WILLIAM S.  
 MCCORMICK, CYRUS H.  
 MCCORMICK, MRS. EDITH  
 ROCKEFELLER  
 MCCORMICK, HAROLD F.  
 MCCORMICK, STANLEY  
 MCCUTCHEON, JOHN T.  
 MCLLVINE, WILLIAM B.  
 MCINNERNEY, THOMAS H.



VALENTINE, LOUIS L.  
VEATCH, GEORGE L.  
VERNAY, ARTHUR S. (N. R.)  
VILES, LAWRENCE M.

WACKER, CHARLES H.  
WANNER, HARRY C.  
WARNER, EZRA JOSEPH  
WEBER, DAVID  
WELLING, JOHN P.  
WETMORE, FRANK O.  
WHEELER, CHARLES P.  
WHITE, F. EDSON  
WHITNEY, MRS. JULIA L.

WICKWIRE, MRS. EDWARD L.  
WIEBOLDT, WILLIAM A.  
WILLARD, ALONZA J.  
WILLITS, WARD W.  
WILSON, JOHN P., JR.  
WILSON, OLIVER T.  
WILSON, THOMAS E.  
WILSON, WALTER H.  
WINSTON, GARRARD B.  
WINTER, WALLACE C.  
WOOLLEY, CLARENCE M.  
WRIGLEY, WILLIAM, JR.

YATES, DAVID M.

DECEASED, 1928

BLACKSTONE, MRS. T. B.  
BLAIR, WATSON F.  
BRADLEY, J. DORR  
BUTLER, EDWARD B.

HEYWORTH, JAMES O.  
HUGHITT, MARVIN

KITTLE, C. M.

DAVIES, D. C.

MANIERRE, MRS. GEORGE

HARVEY, FORD F. (N. R.)

RYERSON, EDWARD L.

## ASSOCIATE MEMBERS

*Those who have contributed \$100 to the Museum*

AARON, CHARLES  
ABBOTT, DONALD P., JR.  
ABBOTT, GORDON C.  
ABBOTT, W. R.  
ABBOTT, WILLIAM L.  
ABRAMS, PROFESSOR DUFF A.  
ACKERMAN, CHARLES N.  
ACOMB, JESSE P.  
ADAMICK, GUSTAV H.  
ADAMS, BENJAMIN STEARNS  
ADAMS, JOSEPH  
ADAMS, MRS. S. H.  
ADAMS, WILLIAM C.  
ADCOCK, MRS. BESSIE  
ADDLEMAN, SAMUEL W.  
ADLER, DAVID  
ADLER, MAX  
ADLER, MRS. MAX  
AHLISCHLAGER, WALTER W.  
ALBEE, MRS. HARRY W.  
ALLBRIGHT, WILLIAM B.  
ALLEN, MRS. FRED G.  
ALING, MRS. C. A.  
ALLING, CHARLES  
ALSBERG, LEWIS

ALSCHULER, ALFRED S.  
ALSIP, CHARLES H.  
ALTER, HARRY  
ANDERSON, ARTHUR  
ANDREWS, ALFRED B.  
ANNAN, MRS. MIRIAM ORMSBY  
ARMBRUST, JOHN T.  
ARMERUSTER, C. A.  
ARMOUR, PHILIP D.  
ARMSTRONG, ARTHUR W.  
ARMSTRONG, MRS. FRANK H.  
ARNOLD, WILLIAM G.  
ASCHER, FRED  
ASHBY, W. B.  
ASHENHURST, HAROLD S.  
ASHER, LOUIS E.  
ATWATER, WALTER HULL  
AURELIUS, MRS. MARCUS A.  
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AUSTIN, DR. MARGARET HOWARD  
AUSTRIAN, ALFRED S.  
  
BAACKES, MRS. FRANK  
BABSON, FRED K.

SARGENT, HENRY B.  
 SARK, JAMES H.  
 SARR, HENRY E.  
 SARR, WALTER S.  
 SARGENT, WILLIAM FRANK  
 SARGENT, CHRISTIAN V.  
 SARR, HARRY E.  
 SARR, MISS ALICE J.  
 SARR, FRANK E.  
 SARR, L. E.  
 SARGENT, FREDERICK THOMAS  
 SARGENT, OWEN W.  
 SARGENT, LOUIS  
 SARR, DR. FRANK W.  
 SARR, HENRY T.  
 SARGENT, THOMAS L.  
 SARGENT, ANDREW G.  
 SARGENT, HARRY A.  
 SARGENT, JAMES J.  
 SARGENT, MISS MATTHEW A.  
 SARGENT, JOHN  
 SARGENT, JAMES M.  
 SARGENT, OWEN B.  
 SARGENT, MISS A. M.  
 SARGENT, MISS CLARE E.  
 SARGENT, MISS GRACE M. F.  
 SARGENT, JOHN H.  
 SARGENT, MISS HELEN  
 SARGENT, HENRY  
 SARGENT, MISS WILLIAM J.  
 SARGENT, MISS FRANKLIN B.  
 SARGENT, FRANKLIN J.  
 SARR, JOHN E.  
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 SARR, CLAUDE L.  
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 SARR, MISS A. M.  
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 SARR, J.  
 SARR, MISS JAMES  
 SARR, MARION  
 SARGENT, C.  
 SARR, WILLIAM L.  
 SARR, MISS ELLA B.  
 SARR, HENRY  
 SARR, THOMAS F.  
 SARR, HENRY V.  
 SARR, THOMAS J. D.  
 SARR, R. T.  
 SARR, LOUIS  
 SARR, MISS ELLA  
 SARR, FRANK L.  
 SARR, ALICE J.  
 SARR, HENRY E.  
 SARR, V. J.

SARR, HENRY  
 SARGENT, FRANKLIN E.  
 SARR, JOHN  
 SARR, ANDREW  
 SARGENT, FRANK  
 SARR, MISS MATTHEW A.  
 SARGENT, FRANKLIN  
 SARR, DR. FRANK W.  
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 SARR, DR. FRANK W.  
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 SARR, THOMAS J. D.  
 SARR, R. T.  
 SARR, LOUIS  
 SARR, MISS ELLA  
 SARR, FRANK L.  
 SARR, ALICE J.  
 SARR, HENRY E.  
 SARR, V. J.

- BOSCH, MRS. HENRY  
 BOTH, WILLIAM C.  
 BOTTS, GRAEME G.  
 BOURNE, RALPH H.  
 BOUSA, DR. B.  
 BOWEN, MRS. LOUISE DE KOVEN  
 BOWEY, MRS. CHARLES F.  
 BOYACK, HARRY  
 BOYD, THOMAS M.  
 BOYDEN, MISS ELLEN WEBB  
 BOYDEN, MISS ROSALIE S.  
 BOYDEN, MRS. WILLIAM C., JR.  
 BOYNTON, MRS. C. T.  
 BOYNTON, F. P.  
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 BRADLEY, MRS. NATALIE BLAIR  
     HIGINBOTHAM  
 BRAMBLE, DELHI G. C.  
 BRAND, MRS. EDWIN L., JR.  
 BRAND, MRS. RUDOLPH  
 BRANDES, A. G.  
 BRANDT, CHARLES H.  
 BRANSFIELD, JOHN J.  
 BRASSERT, HERMAN A.  
 BRAUER, MRS. PAUL  
 BRAUN, MRS. MARTHA E.  
 BRECKINRIDGE, PROFESSOR S. P.  
 BREMNER, MRS. DAVID F.  
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 BRIDGE, GEORGE S.  
 BRIGGS, MRS. GERTRUDE  
 BRIGHAM, MISS F. M.  
 BROCK, A. J.  
 BRODRIBB, LAWRENCE C.  
 BROOME, THORNHILL  
 BROWN, A. W.  
 BROWN, BENJAMIN R.  
 BROWN, CHARLES A.  
 BROWN, CHRISTY  
 BROWN, DR. EDWARD M.  
 BROWN, GEORGE D.  
 BROWN, MRS. GEORGE DEWES  
 BROWN, JOHN T.  
 BROWNE, ALDIS J.  
 BRUCKNER, WILLIAM T.  
 BRUGMAN, JOHN J.  
 BRUNDAGE, AVERY  
 BRUNSWICK, LARRY  
 BRYANT, JOHN J., JR.  
 BUCK, GUY R.  
 BUCK, NELSON LEROY  
 BUDLONG, JOSEPH J.  
 BUEHLER, CARL  
 BUEHLER, H. L.  
 BUETTNER, WALTER J.  
 BUFFINGTON, MRS. M. A.  
 BUHMANN, GILBERT G.  
 BULLOCK, CARL C.  
 BURGESS, CHARLES F.  
 BURKHOLDER, DR. J. F.  
 BURNHAM, MRS. E.  
 BURNS, MRS. RANDALL W.  
 BURRY, MRS. WILLIAM  
 BUSBY, LEONARD A.  
 BUSH, DAVID D.  
 BUSH, MRS. WILLIAM H.  
 BUTLER, MRS. HERMON B.  
 BUTLER, PAUL  
 BUTLER, RUSH C.  
 BUTZ, HERBERT R.  
 BUTZ, ROBERT O.  
 BUTZ, THEODORE C.  
 BUTZOW, MRS. ROBERT C.  
 BUZZELL, EDGAR A.  
 BYFIELD, DR. ALBERT H.  
 CABLE, J. E.  
 CAHN, DR. ALVIN R.  
 CAHN, MORTON D.  
 CALDWELL, C. D.  
 CALDWELL, J. T.  
 CAMERON, DR. DAN U.  
 CAMERON, JOHN M.  
 CAMERON, WILL J.  
 CAMP, MRS. ARTHUR ROYCE  
 CAMPBELL, DELWIN M.  
 CAMPBELL, HERBERT J.  
 CAPES, LAWRENCE R.  
 CAPPS, DR. JOSEPH A.  
 CARON, O. J.  
 CARPENTER, MRS. BENJAMIN  
 CARPENTER, FREDERIC IVES  
 CARPENTER, MRS. GEORGE A.  
 CARPENTER, GEORGE S.  
 CARPENTER, HUBBARD  
 CARPENTER, MISS ROSALIE S.  
 CARQUEVILLE, MRS. A. R.  
 CARR, MRS. CLYDE M.  
 CARR, GEORGE R.  
 CARR, WALTER S.  
 CARROLL, JOHN A.  
 CARRY, J. C.  
 CARTON, ALFRED T.  
 CARY, DR. EUGENE  
 CASE, ELMER G.  
 CASEY, MRS. JAMES J.  
 CASSELS, EDWIN H.  
 CASTLE, ALFRED C.

TAYLOR, HENRY  
 TAYLOR, DR. CHARLES E.  
 TAYLOR, EDWIN A.  
 TAYLOR, GEORGE J.  
 TAYLOR, MISS CHARLES E.  
 TAYLOR, PAUL E.  
 TAYLOR, THOMAS, WAYNE  
 TAYLOR, MISS ANNE V.  
 TAYLOR, DR. HENRY W.  
 TAYLOR, GEORGE H.  
 TAYLOR, DR. H. S.  
 TAYLOR, GEORGE A.  
 TAYLOR, GEORGE A.  
 TAYLOR, ALFRED W.  
 TAYLOR, MISS ALICE EMIL  
 TAYLOR, CHARLES C.  
 TAYLOR, MISS FRANCES S.  
 TAYLOR, HENRY H.  
 TAYLOR, DR. FRANK A.  
 TAYLOR, CHARLES F.  
 TAYLOR, FRANK L.  
 TAYLOR, JOHN J., JR.  
 TAYLOR, PAUL W.  
 TAYLOR, WILLIAM H.  
 TAYLOR, WILLIAM E., JR.  
 TAYLOR, MISS LUCY L.  
 TAYLOR, GEORGE E.  
 TAYLOR, MISS L. LEWIS  
 TAYLOR, FRANKLIN S.  
 TAYLOR, MISS GEORGE E.  
 TAYLOR, ALFRED E.  
 TAYLOR, DR. JENNIE H.  
 TAYLOR, LUCAS W., JR.  
 TAYLOR, WM. GEORGE  
 TAYLOR, PAUL V.  
 TAYLOR, WILLIAM M.  
 TAYLOR, HENRY J.  
 TAYLOR, MISS W. H., JR.  
 TAYLOR, MISS IDA F.  
 TAYLOR, PAUL E.  
 TAYLOR, MISS JAMES H.  
 TAYLOR, F. B.  
 TAYLOR, MISS ALICE H.  
 TAYLOR, GEORGE ANDREW  
 TAYLOR, LUCAS L.  
 TAYLOR, E. C.  
 TAYLOR, JAMES F.  
 TAYLOR, J. S.  
 TAYLOR, JOHN STEWART, JR.  
 TAYLOR, FRANK L.  
 TAYLOR, GEORGE  
 TAYLOR, MISS WILLIAM J.  
 TAYLOR, GEORGE  
 TAYLOR, THOMAS T.  
 TAYLOR, JOHN E.

TAYLOR, MISS JENNIE E.  
 TAYLOR, GEORGE H.  
 TAYLOR, MISS GEORGE W.  
 TAYLOR, JOHN E.  
 TAYLOR, JOHN V.  
 TAYLOR, MISS FRANKLIN W.  
 TAYLOR, GEORGE C.  
 TAYLOR, GEORGE H.  
 TAYLOR, GEORGE E.  
 TAYLOR, GEORGE H.  
 TAYLOR, MISS GEORGE JAMES  
 TAYLOR, DR. WILLIAM H.  
 TAYLOR, GEORGE J.  
 TAYLOR, DR. LEWIS  
 TAYLOR, MISS GEORGE J.  
 TAYLOR, JOHN J.  
 TAYLOR, HENRY E.  
 TAYLOR, ALFRED H.  
 TAYLOR, JOHN F. S.  
 TAYLOR, HENRY  
 TAYLOR, JOHN F.  
 TAYLOR, A. W.  
 TAYLOR, HENRY E.  
 TAYLOR, CHARLES C.

TAYLOR, MISS H. H.  
 TAYLOR, GEORGE  
 TAYLOR, DR. FRANK C.  
 TAYLOR, GEORGE H.  
 TAYLOR, DR. WILLIAM E.  
 TAYLOR, C. H.  
 TAYLOR, MISS JENNIE C.  
 TAYLOR, JOHN  
 TAYLOR, J. S.  
 TAYLOR, DR. CARL  
 TAYLOR, FRANK A.  
 TAYLOR, FRANK M.  
 TAYLOR, JAMES  
 TAYLOR, JAMES C.  
 TAYLOR, DR. HENRY E., III  
 TAYLOR, H. L.  
 TAYLOR, HENRY M.  
 TAYLOR, MISS MARY L.  
 TAYLOR, JOHN C., JR.  
 TAYLOR, THOMAS E.  
 TAYLOR, GEORGE H.  
 TAYLOR, LEWIS M.  
 TAYLOR, FRANK J.  
 TAYLOR, GEORGE A., JR.  
 TAYLOR, GEORGE E.  
 TAYLOR, MISS JOHN  
 TAYLOR, FRANKLIN C.  
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 SORENSSEN, JAMES  
 SPINDLER, OSCAR  
 SPITZ, JOEL  
 SPOOR, MRS. JOHN A.  
 SPRINGER, MRS. SAMUEL  
 SQUIRES, JOHN G.  
 STANTON, EDGAR  
 STEFFENS, RALPH SUTHERLAND  
 STEFFEY, DAVID R.  
 STEIN, BENJAMIN F.  
 STEIN, DR. IRVING  
 STEIN, L. MONTEFIORE  
 STEIN, SAMUEL M.  
 STEIN, MRS. SETIA H.  
 STEIN, WILLIAM D.  
 STEPHENS, W. C.  
 STERBA, DR. JOSEPH V.  
 STERN, ALFRED WHITAL  
 STERN, DAVID B.  
 STERN, MAURICE S.  
 STERN, OSCAR D.  
 STEVENS, DELMAR A.  
 STEVENS, EDWARD J.  
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 STEVENS, JAMES W.  
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 STEVENS, RAYMOND W.  
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 STEVENSON, E.  
 STEWART, MISS AGNES N.  
 STEWART, MISS EGLANTINE DAISY  
 STEWART, JAMES S.  
 STEWART, MISS M. GRAEME  
 STRANDBERG, ERIK P., SR.  
 STIRLING, MISS DOROTHY  
 STRAUS, DAVID  
 STRAUS, MARTIN L.  
 STRAUS, MELVIN L.  
 STRAUS, S. J. T.  
 STRAUSS, HENRY X.  
 STREET, MRS. CHARLES A.  
 STROBEL CHARLES L.  
 STROMBERG, CHARLES J.  
 STRUBY, MRS. WALTER V.  
 STRONG, EDMUND H.  
 STRONG, WALTER A.  
 STROTZ, HAROLD C.  
 STURGES, HOLLISTER  
 STURGES, SOLOMON  
 STURTEVANT, HENRY D.  
 SUEKOFF, LOUIS A.  
 SULLIVAN, HON. JOHN J.  
 SULZBERGER, FRANK L.  
 SUTCLIFFE, MRS. GARY  
 SUTHERLAND, WILLIAM  
 SWAN, OSCAR H.  
 SWANSON, JOSEPH E.  
 SWARTCHILD, EDWARD G.  
 SWARTCHILD, WILLIAM G.



- WEDELSTAEDT, H. A.  
 WEIL, ISADORE  
 WEIL, MARTIN  
 WEILER, RUDOLPH  
 WEINZELBAUM, LOUIS L.  
 WEISBROD, BENJAMIN H.  
 WEISSENBACH, MRS. MINNA K.  
 WEISSKOPF, MAURICE J.  
 WEISSKOPF, DR. MAX A.  
 WELLS, ARTHUR H.  
 WELLS, JOHN E.  
 WELLS, PRESTON A.  
 WELLS, THOMAS E.  
 WELLS, MRS. THOMAS E.  
 WENDELL, BARRETT, JR.  
 WENTWORTH, HUNT  
 WENTWORTH, MRS. MOSES J.  
 WERNER, FRANK A.  
 WEST, J. ROY  
 WEST, MISS MARY SYLVIA  
 WESTERFELD, SIMON  
 WESTRICH, MISS T. C.  
 WETTEN, ALBERT H.  
 WETTLING, LOUIS E.  
 WHEALAN, EMMETT  
 WHEELER, GEORGE A.  
 WHEELER, LEO W.  
 WHEELER, LESLIE  
 WHEELER, MRS. ROBERT C.  
 WHINERY, CHARLES C.  
 WHITE, HAROLD F.  
 WHITE, JOSEPH J.  
 WHITE, ROBERT  
 WHITEHOUSE, HOWARD D.  
 WHITING, MRS. ADELE H.  
 WHITING, J. H.  
 WHITLOCK, WILLIAM A.  
 WIBORG, FRANK B.  
 WIELAND, CHARLES J.  
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 WILKINSON, JOHN C.  
 WILLEY, MRS. CHARLES B.  
 WILLIAMS, MISS ANNA P.  
 WILLIAMS, DR. A. WILBERFORCE  
 WILLIAMS, HARRY L.  
 WILLIAMS, LUCIAN M.  
 WILLIAMSON, GEORGE H.  
 WILLIS, PAUL JR.  
 WILLIS, THOMAS H.  
 WILMS, HERMAN P.  
 WILSON, MRS. E. CRANE  
 WILSON, HARRY BERTRAM  
 WILSON, MRS. JOHN R.  
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 WILSON, MRS. ROBERT CONOVER  
 WINANS, FRANK F.  
 WINSTON, HAMPDEN  
 WINSTON, JAMES H.  
 WINTERBOTHAM, JOHN H.  
 WINTERS, LEANDER LEROY  
 WOJTALEWICZ, REV. FRANCIS M.  
 WOLEY, DR. HARRY P.  
 WOLF, HENRY M.  
 WOLF, WALTER B.  
 WOLFF, LOUIS  
 WOOD, JOHN G.  
 WOOD, ROBERT E.  
 WOOD, WILLIAM G.  
 WOODRUFF, GEORGE  
 WOODS, WEIGHTSTILL  
 WOODWARD, C. H.  
 WORCESTER, MRS. CHARLES H.  
 WORK, ROBERT  
 WORMSER, LEO F.  
 WORTH, MISS HELEN E.  
 WORTHY, MRS. S. W.  
 WRENN, MRS. EVERTS  
 WRIGHT, WARREN  
 WRIGLEY, MRS. CHARLES W.  
 WRIGLEY, PHILIP K.  
 YEGGE, C. FRED  
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 YERKES, RICHARD W.  
 YONDORF, MILTON S.  
 ZAPPEL, ELMER  
 ZEISLER, MRS. ERWIN P.  
 ZIEBARTH, CHARLES A.  
 ZIMMER, MRS. RUDOLPH E.  
 ZIMMERMAN, HERBERT P.  
 ZIMMERMAN, LOUIS W.  
 ZORK, DAVID  
 ZULFER, P. M.

## DECEASED, 1928

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 ARNOLD, WILLIAM G.  
 BAIRD, WYLLYS W.  
 BECK, MRS. EDWARD SCOTT  
 BEIL, CARL  
 BURLEY, CLARENCE A.  
 CARR, EDMUND S.  
 CODY, ARTHUR B.



COHEN, BENJAMIN  
 COHEN, LOUIS  
 COMPTON, D. M.  
 CONNELL, PHILLIP G.  
 COOKE, MISS FLORA  
 COYLE, EDWIN L.  
 CRAIGIE, A. M.  
 CRATTY, MRS. JOSIAH  
 CRILLY, EDGAR  
 CRONWALL, EDWARD C.  
 CROSBY, FRED M.  
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 CURTIS, AUSTIN GUTHRIE, JR.

DALMAR, HUGO  
 DANA, W. D.  
 DANIELS, H. L.  
 DANZ, CHARLES A.  
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 DAVIES, WARREN T.  
 DeDARDEL, CARL O.  
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 DeWINDT, HEYLIGER A.  
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 DICKINSON, THEODORE  
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 DODGE, O. V.  
 DOERING, WALTER C.  
 DOUGLASS, KINGMAN  
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 DUBOW, JACOB A.  
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 DUNER, JOSEPH A.  
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 DUNN, W. FRANK  
 DYCHE, WILLIAM A.

EDMONDS, HARRY C.  
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 EISENSTAEDT, HARRY  
 EISENSTEIN, SOL  
 EITEL, MAX  
 ELLINGSEN, E.  
 ELTING, HOWARD

FELSENTHAL, EDWARD GEORGE  
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FETCHER, EDWIN S.  
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HAGEN, FRED J.  
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 HAMILTON, THOMAS B.  
 HAMMOND, LUTHER S., JR.  
 HAND, GEORGE W.  
 HANSON, MRS. BURTON  
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 HART, GILBERT  
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 HATTSTAEDT, WILLIAM O. J.  
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 HEIDKE, HERMAN L.  
 HEINEMANN, EARL  
 HELFRICH, J. HOWARD  
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 HENDERSON, THOMAS B. G.  
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 HENRY, HUNTINGTON B.



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 POST, FREDERICK, JR.  
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 PRITZKER, I. L.  
 PROTHERO, DR. JAMES H.  
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 RELLIHEN, EDWIN G.  
 RENTNER, OTTO C.  
 RICH, ELMER  
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 RICHARDSON, GUY A.  
 RICKCORDS, FRANCIS  
 RIES, DR. EMIL  
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 ROBBINS, PERCY A.  
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ROSENTHAL, KURT  
 ROTHSCHILD, JUSTIN  
 ROUTH, GEORGE D., JR.  
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 RYERSON, DONALD M.

SAMPEL, MARSHALL E.  
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 SCHEUNEMANN, ROBT. G.  
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 SHAW, ANDREW H.  
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 SMITHIES, DR. FRANK  
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 STEVENS, CHARLES R.  
 STOCKTON, EUGENE M.  
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TAYLOR, CHARLES CORTLAND  
 TENINGA, CORNELIUS  
 THOMPSON, C. E.  
 THOMPSON, MRS. CHARLES M.  
 THOMPSON, FRED L.  
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 TILDEN, LOUIS EDWARD  
 TIMBERLAKE, MRS. THOMAS M.  
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 TOOLLEN, CLARENCE A.  
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 TRUDE, HON. DANIEL P.  
 TUCKER, S. A.  
 TURNER, DR. B. S.  
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 TYLER, BYRON

VALENTINE, STEPHEN  
 VEON, SIMON HENRY  
 VOSS, ADOLPH G. SR.



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 ALLENSWORTH, A. P.  
 ALLIN, MISS JOSEPHINE T.  
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 ALSAKER, MRS. ALFRED  
 ALSCHULER, HON. SAMUEL  
 ALT, GEORGE E.  
 ALTHEIMER, BEN J.  
 ALTMAN, ROBERT M.  
 ALTON, MRS. JESSE B.  
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 ANDERSON, BROOKE  
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 ANDERSON, NORMAN K.  
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 ANDREWS, DR. BENJAMIN F.  
 ANHEISER, HUGO  
 ANOFF, ISIDOR S.  
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 ANTHONY, JOSEPH R.  
 ANTONOW, SAMUEL L.  
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 ARMS, HERBERT C.  
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 ARMSTRONG, PERCY W.  
 ARN, W. G.  
 ARNOLD, FRANCIS M.  
 ARNOLD, MRS. HUGO F.  
 ARNOLD, MARSHALL  
 ARQUETTE, GEORGE L.  
 ARTHUR, GEORGE E.  
 ARTHUR, MISS MINNIE J.  
 ASCHER, NATHAN  
 ASHBY, D. E.  
 ASHCRAFT, R. M.  
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 ASMA, DR. F. M.  
 ATKEISSON, DR. J. E. H.  
 ATKINSON, MRS. A. L. C.  
 ATKINSON, CHARLES T.  
 ATKINSON, ROY R.  
 ATWELL, W. C.  
 ATWOOD, MRS. C. E.  
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 BACON, ASA  
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 BAILEY, W. H.  
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 BAKER, CLAUDE M.  
 BAKER, MRS. DORA H.  
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 BAKER, JAMES CHILDS  
 BAKER, JAMES R.  
 BAKER, MISS JULIA A.  
 BALABAN, MRS. A. J.  
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 BALDERSTON, MRS. STEPHEN V.  
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 BALDWIN, WILLIAM  
 BALL, MRS. GODFREY H.  
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 BALLARD, MRS. E. S.  
 BALTZ, MRS. PHIL G.  
 BANGS, WILLIAM D.  
 BANKARD, E. HOOVER, JR.  
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 BANNING, SAMUEL W.  
 BARBER, MRS. F. L.



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 BLACK, MRS. HERBERT G.  
 BLACK, ROBERT F.  
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 BLACKFORD, WILBUR F.  
 BLACKMAN, HERBERT F.  
 BLACKWOOD, MRS. A. E.  
 BLAIR, MRS. M. BARBOUR  
 BLAIR, THOMAS S., JR.  
 BLAKE, MRS. F. B.  
 BLAKE, MRS. WILLIAM H.  
 BLAKELEY, JOHN M.  
 BLAZON, JOHN J.  
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 BLITZSTEN, DR. N. LIONEL  
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 BLOCK, DR. LOUIS H.  
 BLOCKI, MRS. FRED W.  
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 BLONDER, EDWARD G.  
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 BLOOM, MRS. LEON  
 BLOOMFIELD, DR. JAMES H.  
 BLOOMFIELD, MRS. LEONARD  
 BLOUNT, M. A.  
 BLUNT, KATHARINE  
 BOBB, DWIGHT S.  
 BODMAN, MRS. EDWARD W.  
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 BÖHNER, WILLIAM F.  
 BOHNETT, HARRY W.  
 BOLITHO, MRS. WILLIAM J.  
 BOLLENBACHER, JOHN C.  
 BOLLES, C. E.  
 BOLT, M. C.  
 BOLTEN, PAUL H.  
 BOLTON, JOHN F.  
 BONE, A. R.  
 BONTHRON, FRANCIS R.  
 BONNER, FRANCIS A.  
 BOONE, ARTHUR  
 BOONE, CHARLES LEVERITT  
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 BORN, EDGAR R.  
 BOROUGH, MISS MARY G.  
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 BOTHMAN, DR. L.  
 BOUCHER, C. S.  
 BOURNIQUE, ALVAR L.  
 BOURQUE, DR. N. ODEON  
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 BRADLEY, CHARLES E.  
 BRADLEY, FRED J.  
 BRADLEY, HERBERT E.  
 BRADSTREET, PERCY W.  
 BRANDENBURG, MRS. O. H.  
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 BRAUCHER, MRS. ERNEST N.  
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 BRAWLEY, DR. FRANK E.  
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 LOEB, DR. LUDWIG M.  
 LOEB, MRS. NELLIE B.  
 LOEBE, ABRAHAM  
 LOEHR, KARL C.  
 LOEHWING, MARX  
 LOESCH, CHARLES F.  
 LOESER, JOSEPH A.  
 LOEWENHERZ, EMANUEL  
 LOEWENSTEIN, EMANUEL  
 LOEWENSTEIN, NATHAN  
 LOGAN, FRANK G.  
 LOGAN, FREDERIC D.  
 LOMAX, WILLIAM L.  
 LONDON, HARRY  
 LONG, FRANK E.  
 LORD, ROBERT O.  
 LORENZ, FREDERICK A.  
 LORENZ, MRS. GEORGE W.



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 McCONNELL, JOHN L.  
 McCONNELL, JOHN W.  
 McCORMAC, DAVID, SR.  
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 McCORMICK, ALISTER H.  
 McCoy, CHARLES S.  
 MCCREADY, MRS. E. W.  
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 McDONALD, MRS. JOHN GRANT  
 McDONALD, L.  
 McDONALD, P. L.  
 McDONALD, W. B.  
 McDUGAL, DAVID B.  
 McDOWELL, MISS MARY E.  
 McFADDEN, EVERETT R.  
 MCFARLAND, MRS. ELLIS  
 McGARRY, JOHN A.  
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 McGOORTY, HON. J. P.  
 MCGOUGH, S. P.  
 McGRATH, DR. JAMES G.  
 MCGREGOR, JAMES P.  
 MCKAY, HARRY H.  
 MCKAY, DR. N. B.  
 MCKEE, PHILIP L.  
 MCKEE, MRS. WILLIAM L.  
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 McLAUGHLIN, DANIEL F.  
 McLAUGHLIN, FRANK L.  
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 McMANUS, J. P.  
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 MEEKER, ARTHUR  
 MEGAW, LLOYD F.  
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 MICHAELSON, C. S.  
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 MITCHELL, CLARENCE B.  
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 MODENE, OSCAR F.  
 MOLDENHAUER, DR. WILLIAM J.  
 MONACO, DR. DONAT F.  
 MONILAW, DR. WILLIAM J.  
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 MOORE, NATHAN G.  
 MOORE, NORTH  
 MOORE, DR. WILLIS  
 MOORMAN, ROY R.

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MURPHY, IRA NATHAN	NEWMAN, ROBERT C.
MURPHY, DR. ROBERT W.	NEWMAN, MISS LUCY H.
MURPHY, MRS. G. H.	NEWMAN, FRANK W.
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MURPHY, MISS FRANK F.	NEWMAN, MISS WILLIAM J.
MURPHY, CHARLES	NEWMAN, WILLIAM H.
MURPHY, LARRY H.	NEWMAN, DR. A. F.
MURPHY, JAMES J.	NEWMAN, WILLIAM F.
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MURPHY, WILLIAM MORRIS	NEWMAN, CORA A.
MURPHY, PAUL	NEWMAN, JOHN A.
MURPHY, FRANK C.	NEWMAN, MISS MARY L.
MURPHY, ROBERT D.	NEWMAN, J. M.
MURPHY, JOHN N.	NEWMAN, MISS LUCY
MURPHY, DR. H. W.	NEWMAN, EDWARD W.
MURPHY, MISS ANNE H.	NEWMAN, JOHN T.
MURPHY, DR. M. C.	NEWMAN, EDWARD W.
MURPHY, THOMAS F.	NEWMAN, THOMAS H.
MURPHY, HENRY H.	NEWMAN, JOHN H.
MURPHY, W. H.	NEWMAN, HENRY F.
MURPHY, JOHN H.	NEWMAN, WALTER
MURPHY, LAWRENCE J.	NEWMAN, J. J.
MURPHY, E. T. H.	NEWMAN, J. F.
MURPHY, J. P.	NEWMAN, DR. L.
MURPHY, DR. GEORGE J.	NEWMAN, GEORGE F.
MURPHY, ROBERT H.	NEWMAN, JOHN
MURPHY, MISS ROBERT H.	NEWMAN, F. H.
MURPHY, GEORGE H.	NEWMAN, GEORGE J.
MURPHY, DR. GEORGE H.	NEWMAN, DR. WILLIAM J.
MURPHY, EDWARD F.	NEWMAN, CHARLES W.
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NACHTSHEIM, CHARLES W.	NEWMAN, MARY HENRY
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NABER, MISS LUCY F.	NEWMAN, DR. GEORGE J.
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NABER, JOHN H.	NEWMAN, GEORGE W.
NABER, PATRICK A.	NEWMAN, FRANK W.
NATH, BENJAMIN	NEWMAN, DR. FRANK J., JR.
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NATH, GENE F.	NATH, DR. H. NATHAN
NATHAN, MISS MARY ANN VIRGINIA	NEWMAN, FRANK A.
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NATH, W. A.	NEWMAN, C. G.
NATH, GEORGE N., JR.	NEWMAN, GEORGE W.
NATHAN, DR. FRANK J., JR.	NEWMAN, M. J.
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NATHAN, GEORGE M.	

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 O'CONNOR, JAMES R.  
 O'CONNOR, MRS. JOHN  
 O'CONNOR, JOSEPH W.  
 O'DONOVAN, DANIEL J.  
 OHNEMUS, MRS. ANTON  
 O'KEEFFE, P. J.  
 OLAFSSON, DR. O. J.  
 OLDFIELD, DR. R. C.  
 OLDS, MILFORD H.  
 OLESON, DR. RICHARD BARTLETT  
 OLIPHANT, MELVILLE J.  
 OLIVER, ROYSTON  
 OLMSTEAD, MRS. G. G.  
 OLSEN, JOHN G.  
 OLSEN, OLAF C. S.  
 O'NEILL, DR. JOHN W.  
 OPDYKE, MRS. RUSSELL H.  
 ORDON, DR. H. J.  
 ORMSBY, MRS. FRANK E.  
 ORR, MRS. WILLIAM GEORGE D.  
 ORRICO, JOSEPH R.  
 ORWIG, RALPH F.  
 OSSENDORFF, DR. K. W.  
 OSTERMANN, MRS. R. M.  
 OTIS, MISS M. E.  
 OTT, JOHN NASH  
 OTTE, HUGO E.  
 OTTMAN, E. H.  
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 PACKARD, DR. ROLLO K.  
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 PALMER, LOUIS O.  
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 PALMER, P. B., JR.  
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- ROBINSON, W. SCOTT  
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 RODEN, CARL B.  
 RODEN, MISS MARION LOUISE  
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 ROONEY, HON. JOHN J.  
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 ROSENBAUM, EDWIN S.  
 ROSENBAUM, MRS. EDWIN S.  
 ROSENBAUM, JULIUS  
 ROSENBERG, BERNHARD  
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 ROSENFELS, IRWIN S.  
 ROSENFELD, MORRIS S.  
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 ROSENSTEIN, JOSEPH  
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 ROSENTHAL, MRS. RALPH J.  
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 ROSS, WILLIAM A., JR.  
 ROTH, ARTHUR J.  
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 ROTH, MRS. LESTER  
 ROTHSTEIN, DR. THOR  
 ROUNTREE, LINGARD T.  
 ROUSSIN, ALFRED G.  
 ROWE, CHARLES B.  
 ROWELL, DR. L. W.  
 ROWLES, E. W. A.  
 ROY, MRS. ERVIN L.  
 ROYER, H. G.  
 RUBIN, JOSEPH E.  
 RUD, MRS. ANTHONY  
 RUDOLPH, MISS BERTHA  
 RUETTINGER, J. C.  
 RUGGLES, HARRY KENNETH  
 RUGGLES, DR. WILLIAM L.  
 RUSSELL, JOHN A.  
 RUTHERFORD, M. D.  
 RYAN, THOMAS C.
- SABBATH, ISIDOR  
 SABBATH, HON. JOSEPH  
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 SACHS, PHILIP G.
- SACKETT, MRS. HOMER S.  
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 SALK, MRS. JACOB  
 SALSAMAN, MRS. ALICE K.  
 SALTIEL, DR. THOMAS P.  
 SALTZSTEIN, FELIX C.  
 SALZMAN, MAX J.  
 SAMPLE, MRS. JOHN GLEN  
 SAMPSON, H. J.  
 SAMPSON, JAMES  
 SAMPSON, DR. S.  
 SANDBERG, MRS. HARRY S.  
 SANDEL, MRS. S.  
 SANBORN, FRANK A.  
 SANDERS, H. A.  
 SANDIDGE, MISS DAISY  
 SANDS, MRS. FRANCES B.  
 SANDS, MRS. HENRY  
 SARTAIN, CHARLES A.  
 SAUER, DR. RAYMOND J.  
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 SAUNDERS, PERCY G.  
 SAWYER, DR. C. F.  
 SAWYER, EDWIN M.  
 SAWYER, MRS. PERCY  
 SCHAAAR, BERNARD E.  
 SCHAFER, O. J.  
 SCHAFFNER, MRS. ALBERT  
 SCHAFFNER, ARTHUR B.  
 SCHAFFNER, HERBERT T.  
 SCHANTZ, O. M.  
 SCHAPIRO, A. L.  
 SCHAUS, CARL J.  
 SCHIESSLE, M.  
 SCHILLING, W. O.  
 SCHMIDT, ADOLPH  
 SCHMIDT, ERNEST A.  
 SCHMIDT, ERNEST E.  
 SCHMIDT, DR. HERBERT J.  
 SCHMIDT, MRS. OTTO G.  
 SCHMIDT, DR. OTTO L.  
 SCHMIDT, PAUL J.  
 SCHMIDT, RICHARD E.  
 SCHNEIDER, BENJAMIN B.  
 SCHNEIDER, GEORGE A.  
 SCHNIGLAU, CHARLES H.  
 SCHNUCHEL, REINHOLD H.  
 SCHOEN, F. J.  
 SCHOENBRUN, LEO  
 SCHOENING, HERMAN M.  
 SCHOEFFLE, MRS. MARTIN  
 SCHRAM, HARRY S.  
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- SMITH, PAISHE B.  
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 SMITH, S. W.  
 SMITH, WALTER M.  
 SMITH, WILLIAM D.  
 SNOW, FRED A.  
 SNYDER, ERWIN P.  
 SNYDER, THOMAS D.  
 SOARES, PROFESSOR THEODORE G.  
 SOLLE, WILL H.  
 SOLLITT, RALPH T.  
 SOMERVILLE, THOMAS A.  
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 SOMMERS, WERNER H.  
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 SORLEY, MRS. MILFORD S.  
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 SPEER, HENRY D.  
 SPENSLEY, H. GEORGE  
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 SPIEGEL, PHILIP  
 SPIEGLER, FRANK F.  
 SPIESBERGER, H. T  
 SPIETH, W. S.  
 SPITZ, LEO  
 SPIVEK, HERMAN  
 SPOHN, JOHN F.  
 SPOHR, FRANK M.  
 SPRY, GEORGE  
 STAFFORD, CHARLES W.  
 STALEY, MISS MARY B.  
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 STALLWOOD, S. C.  
 STANTON, C. N.  
 STANTON, DR. E. M.  
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 STANTON, HOWARD B.  
 STARR, DR. PAUL  
 STARRETT, JAMES W.  
 STEARNS, FRED  
 STECHER, WALTER R.  
 STEELE, LEO M.  
 STEELE, SIDNEY J.  
 STEFFENSEN, SIGURD  
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 STEINBERG, SAMUEL E.  
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 STEINFELDT, DR. C. R.  
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 STENSON, FRANK R.  
 STEPHEN, EDWARD I.  
 STEPHENSON, SAMUEL G.  
 STERLING, DOUGLAS T.  
 STERN, FELIX  
 STERN, MRS. HERBERT L.  
 STERN, JACOB S.  
 STERNBERG, MORRIS  
 STEVENS, ERNEST  
 STEVENSON, JAMES R. D.  
 STEWART, GEORGE R.  
 STEWART, S. CHANDLER  
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 STOCKTON, A. C.  
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 STRAUSS, JESSE L.  
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 STREET, CHARLES L.  
 STREET, EDWARD P.  
 STRIGL, F. C.  
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 STROM, ARTHUR B.  
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 WAGNER, H. D.  
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 WAHL, ALBERT  
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 WAITE, MISS MURIEL W.  
 WALBORN, MISS ZENA  
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 WALDO, DR. PROCTOR C.  
 WALDRON, JOHN C.  
 WALDSCHMIDT, WILLIAM K.  
 WALKER, BARTON F.  
 WALKER, MISS EDITH M.  
 WALKER, JAMES R.  
 WALKER, DR. JAMES W.  
 WALLACE, MRS. DAVID  
 WALLER, MISS KATHERINE  
 WALSH, MARTIN  
 WALSH, MISS MARY  
 WALSH, DR. THOMAS F. P.  
 WALSH, DR. THOMAS G.  
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 WALTON, LYMAN A.  
 WARREN, ALLYN D.  
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 WARREN, WILLIAM G.  
 WASHBURN, DR. JAMES MURRAY  
 WASHBURNE, MRS. HEMPSTEAD  
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 WATKINS, FRANK A.  
 WATKINS, FREDERICK A.  
 WATKINS, JESSE M.  
 WATSON, LEO M.  
 WATSON, R. G.  
 WAUGH, WILLIAM FRANCIS  
 WEAKLY, F. B.  
 WEARY, EDWIN D.  
 WEBB, MRS. MARTHA  
 WEBB, MRS. THOMAS J.  
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 WEBSTER, EDGAR CONVERSE  
 WEBSTER, DR. EDGAR M.  
 WEBSTER, TOWNER K., JR.  
 WEDDELL, JOHN  
 WEGG, DONALD R.  
 WEICHBRODT, RUDOLPH C.  
 WEIGEN, DR. ANDERS J.  
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 WEINBERG, JACOB S.  
 WEINSTEIN, DR. M. L.  
 WEINTROUB, BENJAMIN  
 WEISBACH, JOHN G.  
 WEISL, E. L.  
 WEISS, MRS. A. J.  
 WEISS, SAMUEL H.  
 WEISSBRENNER, DR. R. F.  
 WEISZ, MRS. CHARLES W.  
 WELCH, DR. JOHN T.  
 WELLES, MRS. EDWARD KENNETH  
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 WENTWORTH, JOHN  
 WERMUTH, DR. ARTHUR W.  
 WERMUTH, W. C.  
 WESCOTT, DR. CASSIUS D.  
 WEST, FREDERICK T.  
 WESTBROOK, MRS. E. S.  
 WESTBROOK, IRA E.  
 WESTMAN, EDWARD C.  
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 WHATLEY, S. T.  
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ZIFF, PETER  
 ZIMMERMAN, RALPH W.  
 ZOELCK, MRS. FRANK

ZOLLA, ABNER M.  
 ZOLLA, DAVID M.  
 ZUCKER, W. J.

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ADAMS, DAVID T.  
 BARNARD, HARRY  
 BARNES, CARL L.  
 BETTELHEIM, BERT  
 BOVIK, MRS. ANNA  
 BURNHAM, CLAUDE G.  
 CLARK, MANCER T.  
 GROOME, RICHARD L.  
 GUGGENHEIM, S.  
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